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ABSTRACT

This thesis presents research that compares the ways students and lecturers of the Lisbon Polytechnic Institute (IPL) perceive and value effectiveness and creativity in teaching. Creativity can be defined in several ways; in this context, it is related to the effectiveness of a teacher. The document discusses results in light of the IPL's goals of production, acquisition, maintenance, and transfer of knowledge. In teaching, creativity and effective teaching are similar concepts. Symbolic interactionism and role theory provide a theoretical basis for examining the respective roles of teachers and students, as does leadership theory. The research involved a survey questionnaire of 852 students and 245 lecturers to examine variations of lecturers' and students' perceptions of various aspects of creativity and effectiveness in teaching. Research results indicate that the importance of creativity, and of creative teaching, may vary depending on the role of the observer. (HB)

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THESIS SUBMITTED TO FULFIL THE REQUIREMENTS FOR THE DEGREE
OF DOCTOR OF PHILOSOPHY IN SOCIAL AND ORGANISATIONAL
PSYCHOLOGY

CREATIVITY AND EFFECTIVENESS IN TEACHING: PERCEPTIONS OF STUDENTS AND LECTURERS OF THE LISBON POLYTECHNIC INSTITUTE (IPL)

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LISBON

October, 1999

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"Alas for the world that there be obstacles!

Obstacles indeed there must be, but alas for the man who provides them!"

New Testament. Matthew 18:5-7

I thank the people of SAPSO (Independent Unit of Social and Organisational Psychology), of the ISCTE, for the opportunities to share findings and doubts about the research. Also to the Army, for the computing facilities provided.

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ABSTRACT

The research aimed at comparing the ways that students and lecturers of the Lisbon Polytechnic Institute (IPL), perceive and value effectiveness and creativity in teaching, and relating it to the fulfilment of the university's goals of production, acquisition, maintenance, and transfer of knowledge.

The construct of creativity was first examined in its theoretical approaches and definitions, to conclude that it was first (and still is) used in the literature to designate something perceived by others, in what may be called *hetero-attributed creativity*, which results in the construction of creativity as something pertaining to the communication process. As in the words of Czikszentmihalyi (1988), "creativity is located in neither the creator nor the creative product but rather in the interaction between the creator and the field's gatekeeper who selectively retains or rejects original products."

Creativity was also presented as a *self-attributed* construct, and in the way the individual perceives reality and develops his or her individuality. In this view creativity is seen simply as growth, or development. To both constructs, the "little c" - "big C" creativity continuum apply, although in different ways.

The creative teaching construct was seen in the literature as similar to the construct of effective teaching, when examining descriptions of teacher and classroom characteristics that pursue the "ideal teacher" image. Creative teaching was also seen in the literature as opposed to certain styles or methods, like "traditional", or "teacher-centred", comparing the best of the former with the worst of the latter, and thus giving rise to a never-ending discussion, between proponents and detractors, of the effectiveness of each type of teaching. Seen as self-perception by teachers, creativity appeared directed towards task improvement, or effectiveness, while keeping the student as the main reference; and acquiring the designation of creative teaching as a hetero-attribution, when succeeding in establishing a relationship with the students.

Symbolic interactionism and role theory were presented in order to providing a means to clarify the social relationship between the roles of teachers and students. Also, as leadership theory and research are very similar to those referring to the teaching situation, theoretical models of leadership were presented and discussed, in order to help us to understand and organise the vast amount of literature related to traits, styles and behaviours of teachers. Leadership role-based theories were presented and adapted to the teaching situation, in order to explain how one constructs the role of teacher in a creative way.

To verify whether lecturers and students perceived creativity and effectiveness in teaching in different ways, a survey questionnaire, drawn out of Kelly's personal construct theory and the grid method, was administered in each one of the seven Schools of the IPL (Media Studies, Teacher Training, Accountancy and Administration, Dance, Music, Theatre and Cinema, and Engineering). A sample of 852 students and 245 lecturers, representing 8,068 students and 912 lecturers was used, together with 26 interviews and 18 class observations, out of a possible 62, of teachers who had been designated as examples of creative teaching. From these interviews, five of them were content-analysed and subjected to correspondence analysis, in order to obtain a simplified and meaningful spatial projection of their discourse.

Results indicate that even though exhibiting similar concepts of creative and of effective teaching, students concentrate more than faculty on the relationship aspects of teaching (creativity), while imagining how they would be as teachers (real), as well as how they would like to be (ideal). As to the task aspects of teaching (effectiveness), perceptions of lecturers and students appeared as similar. This tendency was detected in every School but the Accountancy and Administration School, whose students proved to be significantly different from every other one as to these perceptions. Another important finding had to do with lecturers selected as creative, who scored similar to students, as to their perception of creativity in teaching, and to their peers, as to their perception of effectiveness, thus revealing a better role clarification than their less creative colleagues. These results were further supported by correspondence analyses made of their discourse.

Besides the variable "Role", which proved to be the best predictor of all, "School" also appeared as an important variable in defining differences in perception within students. There were no differences in perceptions of real and ideal teaching detected among faculty, and the variables "Teaching Experience", "Subject Taught", "School", "Sex", and "Academic Qualifications", did not originate significant differences. As to the students, besides the variable "School", the predictors "Sex" and "Year" detected some differences in perception, in accordance with the School considered.

As to perceptions of non-creative teaching, no differences among groups were detected.

This research proved to be an important contribution to the understanding of the ways that students and faculty see the role of a teacher in higher education, and to evaluate the importance of creativity in teaching. It provided enough evidence to support the finding that the importance of creativity, and of creative teaching, may change depending on the role of the observer. Besides bringing in contributions that can be used in leadership and teacher training, and in the evaluation of excellence in higher education teaching, the dissertation introduced refinements in creativity theory that may help to clarify the separation between theoretical constructs and people's concepts of the term.

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PART I - INTRODUCTION

Motivations and Purposes of This Study

"(...) Great teachers will have to live with the fate of being fired, discredited, isolated or their funds being withdrawn(...)"
Paul Torrance (1995), p. 109

Although referring to other educational levels besides further education (the term meaning education at universities, colleges, polytechnics, and other institutions of higher education), Paul Torrance's words have made me wonder why it is not precisely the opposite that happens, and whether it will always be like this.

We tend to think that what happened to great teachers ("teacher" is used in this text to mean professors, or lecturers) in the past would not fit in with today's western civilisation and its openness to creativity and innovation - or would it? At least it would not happen in the modern university - or would it? Even admitting that the university staff (faculty and administration), as in any other complex public organisation, would tend to reject teachers who might unbalance the system by bringing in too many innovations, could a creative teacher be better accepted at least by the student population, and not only by the creative students? Would there be differences in this acceptance according to the faculty, course, course year or other variables?

Trying to answer all these questions requires a deep understanding of what is meant by creativity and creative teaching, how it fits in with the role and tendencies of today's university; and how one constructs and performs the role of a teacher, in a way that meets the requirements of the immediate "client" - the student - as well as the requirements of peers and superiors. This understanding can contribute to an easier acceptance of the truly creative teacher by a rather conservative organisation such as the university, and to help the creative teacher to balance more effectively students' and peers' requirements.

This research is therefore dedicated to teachers in higher education who would like to pursue creative approaches to teaching, and to be seen as effective by both students and staff, or at least from the point of view of the immediate "client" - the undergraduate student. And so it aims at comparing the ways both teachers and students value effectiveness and creativity in teaching, and relating it to the fulfilment of the university's goals of production, acquisition, maintenance, and transfer of knowledge.

In order to understand these goals, we may start with a statement quoted by Boden (1994), which says that "the purpose of life lies not in knowledge but in action", that is to say that knowledge is not an end in itself but only a means to do something, from the easiest manual task to the most complex scientific paradigm. Higher education, that is, the process through which the adolescent agrees to become an adult (Csikszentmihalyi, 1997), is not made up of the simple accumulation of facts and concepts but, as Murray (1995) states, of the acquisition of the capacity to put the right questions and of using evidence to answer them.

Thus, a student should not go into the university only to know more or to acquire some skills, but to learn to think, in order to be able to find the most appropriate answers for tomorrow's problems. So it will not be legitimate to expect the student to be limited to reproducing what was taught - meaning either the memorisation of facts, the handling of machines or the following of procedures - but to be able to do something original and useful.

Even if the university cannot teach people how to create, it can nourish the drive for creativity, for curiosity and for enlightenment. It can help the building of an environment favourable to creativity, allowing the student to develop creative thinking, which, in Torrance's (1971; 1995) terms, means to learn to define problems, testing hypotheses and ways to communicate them successfully; to explore, question, experiment, manipulate, listen, observe, feel.

Carrying out this task, and using Treffinger's (1996) expressions, teachers do not appear as "dispensers of information", but as "facilitators" of the process of student development. In this way, as Wojtas (1996) puts it, being a good communicator comes first, before being an expert in the discipline, because the quality of the teaching act lies not only in the teacher's knowledge, but in the teaching itself, that is to say, in what is involved in the tasks and relationships that are maintained with the students. A teacher, as Torrance and Safter (1990) quote from John Steinbeck, "is an artist (...) and might even be the greatest of the artists, since the medium is the human mind and spirit", and the most memorable teachers, as Csikszentmihalyi (1997) says, are not the ones with most power, status or control over resources, but those who did things that were worth doing.

As Bess (1997) states, teaching well is very hard to achieve: it requires high energy, focus and total commitment, and necessitates a continual testing of self as a presumed expert in one's field and in the field of education, as well as of the understanding of the role that each one, teacher and student, plays in society. Teaching creatively, Spector (1983) says, is not trying to be original, but just to continue to grow and give expression to that growth by increasing the number of techniques, approaches and materials used with students, so as to help them to use the subject matter in a way that is transferable to new problems; that allows for the understanding of the meaning of the learned materials; that favours the establishment of a better relationship with oneself, with others and with the surrounding environment. The purpose of creative teaching, as in the words of Cropley (1992), is not to produce creative solutions but to energise and crystalise creative efforts in the students, by removing obstacles and producing incentives.

On the other hand, as Lyons (1987) points out, higher education, in the eyes of many students, may be only a means to acquire a certification, not education, and then creativity appears more as a nuisance than as a necessity. Also, the university, as a far from perfect organisation, may develop other goals, like providing power, money and status for those who are part of it. In that struggle for power, faculty fights against administration, students against faculty, public against students; resource allocation drives bright people to fight for their pieces of the pie, leading to lobbies within the university. Job security, emphasis on the evaluation of students, wise appearance, regulation enforcing, planning for purposeless courses... All these may become hidden goals. As Sinnott and Johnson (1996) stress, cultures and universities act like living systems, so it is not surprising that they go on doing business as usual as if they have a life of their own, strongly resisting outside pressures.

To understand the implications that these possible orientations may have upon the students and faculty, we must realise what is involved in the transition from a student role to that of a teacher's; how it is that we, as students, see things we like in our teachers, and things that we dislike, and when we become teachers ourselves we do not even seem to notice that we are committing the same mistakes we used to criticise; or if we do notice, we just do not provide adequate solutions, because many of the particularities of a teacher role construction lie beyond conscious understanding.

We must also understand what the various actors mean by performing well the role of a teacher, because one thing is to be appointed to perform that role in an organisation, and another is to be recognised as a good performer by everyone with whom one has to interact. The judgement of one's effectiveness is subjective and differs with the person who judges. And if this is true for more objective items like technical competence, it varies much more when we speak of the use of skills to influence other people, like leadership or teaching.

In the case of faculty there are at least two competing roles in which a teacher may be judged, as Sundre (1990) states: scientific and pedagogic. If the first is relatively easy to evaluate through the research and publication activities of the individual, the second poses many problems related to its definition and the role of the agents who play a part in its assessment. That is why a discussion on the role of the teacher, and its evaluation, will be needed.

This research will have to deal with the explanation of the concepts surrounding the perception of the role of a teacher, and to appraise how its creative and non-creative ways of performing are evaluated by the different actors who have a part to play in that construction. To do that we must first try to clarify the central concepts of the domain of this research - creativity and creative teaching - either from the point of view of the literature, or from the perceptions of the teachers and students who belong to the population of this investigation.

Organisation of the Dissertation

The dissertation will be organised in three parts: literature review, method, and results and discussion. The Literature Review part (Part I), will be divided into four chapters, the first three being directed to the general concepts and theory, and the fourth to previous studies, aims and objectives. The Method part (Part II), will have six chapters, presenting material concerning the research methodology and general procedures, the description of the various organisations and subjects who were part of the investigation, the building of the main instrument, the pilot study, the validation study, and the procedures that were followed; the Results and Discussion part (Part III), will include two chapters devoted to quantitative and qualitative analyses, respectively, and one to the discussion of the whole research.

As creative teaching is the central point of the research, but is also a composite concept, the literature review will start with the first concept - creativity. Therefore, the first chapter will be devoted to the discussion of the construct of creativity, trying to clarify what is meant by this term, calling attention to disagreements among theorists, differentiating hetero- from self-attributed creativity, and presenting ways to clarify its evaluation, so that we may come to a shared definition of creativity as a scientific construct and as a lay concept. Adopting the lines of thought developed in the first chapter, Chapter Two will deal with the concepts of effective and creative teaching, trying to clarify its meaning and the extent to which both adjectives are regarded as synonymous, as well as the problem of its evaluation and transposition to teacher training and performance. The third chapter of the

Literature Review part will be dedicated to the focal theory and the theoretical model within which the research will take place, starting with symbolic interactionism and role theory and proceeding to Kelly's personal construct theory. Leadership theory and research, using well-established models to explain the relationships between leaders and followers (especially those derived from symbolic interactionism and role theory), will be used as a direct analogy with the teaching situation, in the attempt to understand the transition from the student role to that of a teacher, as well as the conception of that role through the eyes of different people. Systematic synthesis, elaborated throughout the text, will provide a clearer integration of symbolic interactionism and role theory, on one side, and leadership theory, on the other, into the teaching situation, keeping creativity as the link concept that unifies all approaches.

A fourth chapter, bringing into the discussion previous studies related to this research, and presenting its aims and objectives, will close Part I of this dissertation.

Given its length and diversity, Part II - Method, will be divided into six chapters. The first one will present the main elements of the research theory needed to support the investigation, as well as the general procedures followed in the interviews and observations . A second chapter - Subjects - will be devoted to the history and description of the seven Schools (faculties) of the Lisbon Polytechnic Institute (IPL), where the investigation took place. The construction of the research instrument, commenting on its reliability and validity, will be included as Chapter Three, while the fourth chapter will describe the Pilot Study, designed as a trial of the investigation, as well as to allow the construction of an improved version of the instrument. This version of the measurement instrument was subjected to a validity study, before being used as the main research instrument, as described in Chapter Five. The last chapter (Chapter Six) will include the Procedure, starting with the characterisation of each sample and moving into the specific procedures developed in each School. These procedures include the administration of the research instrument to a sample of students and lecturers in the various courses, interviewing teachers designated as creative, and doing direct observation of their classes.

The Results and Discussion part (Part III) of the manuscript, will include two results chapters and the Discussion Chapter. In the first results chapter, the data collected in each of the various Schools will be analysed, following the structure of each one of the defined propositions, first as to its reliability and validity, and then moving to the general descriptive and correlational analyses; followed by the confirmation of the factor structure devised in the pilot study, to evaluate the fit between the factors selected and the population, either as a whole, or in each School. Final analyses will deal with the comparisons between perceptions of teachers and students, as well as evaluating the influence of the other independent variables selected, closing with the examination of the results obtained by the faculty selected as an example of creative teaching. The second results chapter will include the qualitative analysis, resulting from the interviews and direct observation of classes of the selected lecturers, describing them and their conceptions of teaching; systematically analysing their discourse, and presenting their definitions of creative and non-creative teaching.

Chapter Three will close the dissertation, starting with the discussion of the aims and objectives defined against the results obtained, going through general and specific limitations of the study and the research instruments, and ending with the conclusions and proposals for future research.

CHAPTER ONE

THE CONSTRUCT OF CREATIVITY

Creativity seems one of those concepts that is easily understood but difficult to explain. According to Woodman & Schoenfeld (1990), this is due to the difference between the terms "concept" and "construct": the former carries meaning in everyday speech and, while imprecise, is widely shared; as to the latter, the construct validity issues surrounding the term can be frustrating in the extreme for researchers.

This chapter will then be devoted to the discussion of the objectivity and subjectivity of the construct of creativity, trying to discover in the literature what this term represents; calling attention to the more important disagreements among theorists; differentiating between various types of creativity; and presenting an evaluation conducive to the clarification of its use in the construction of the role of teacher, as well as in every other application relevant to this research. Later on in this dissertation, after the exploration of the results of the empirical research, people's conceptions of creativity will be examined, in the hope that, in the end, theoretical constructs and people's concepts may merge in a single conception of what creativity, and creative teaching, really mean.

Theoretical Approaches and Definitions

The study of creativity has made considerable progress since its early attempts to find answers about genius, using statements like that of Milford Brad, in *Graham's Magazine*, 1829, where he considered that as the blood supply to the brain was the single most systematic factor of genius, red hair was then a visible characteristic of genius (Friedel, 1992).

Later, even though preceded by works like *The Lives of the Artists* by Vasari, in 1568 (Boorstin, 1994), and Lélut's study of Socrates, in 1836 (Prentky, 1989), it is to Sir Francis Galton's book *Hereditary Genius*, in 1870, that the beginning of the systematic study of creativity is normally attributed. Galton (1979) investigated the possibility that excellence in diverse domains had a common set of causes: innate ability, eagerness to work and "adequate power of doing a very laborious work" (p. 37). And because, as Ericson & Charness (1994) state, these last two factors (motivation and effort) had already been recognised, later investigators concentrated primarily on innate abilities or personality characteristics, which influenced initial definitions proposed by reputed scientists like Guilford (1950), who saw creativity as "a pattern of traits that are characteristic of creative persons", or Ausubel (1978), to whom it was a "particularised substantive capacity that supports intellectual-personality functions".

Freud, and later Jung, influenced initial conceptualisations of creativity, as something pertaining to the unconscious; also Gestalt psychologists, like Wertheimer and Köhler, gave rise to broad conceptions of the term, as in Ghiselin's (1957) definition of it as "the process of change, of development, of evolution, in the organisation of subjective life"; the humanists, like Rogers and Maslow, viewed it as an "emergence in action of a novel relational product, growing out of the uniqueness of the individual on the one hand, and the materials, events, people or circumstances of his life on the other" (Rogers, 1950). The tendency to produce broad conceptions and definitions continued under phenomenological views, as in Koestler's bissociative theory (Koestler, 1969), where "creativity involves the deliberate connecting of two previously unrelated 'matrices of thought' to produce a new insight or invention".

A more precise approach started with early twentieth century association theories, represented by Thorndike, Thurstone and others, who influenced what was later called divergent-thinking theories, as in Guilford's model of the structure of the intellect (Guilford, 1954), and Torrance's studies on creative education (Torrance, 1962; Torrance & Myers, 1970). In recent publications (Torrance & Goff, 1992; Torrance, 1996), this author still sees creative thinking as a process of "sensing problems or gaps in information, forming ideas or hypotheses, testing and modifying these hypotheses, and communicating the results". Also Mednick's associative theory of creative thought (Mednick,1962), although not developed to explain divergent production, as Baer (1993) states, interpreted creativity as the "forming of associative elements into new combinations which either meet specific requirements or are in some way useful".

Even though the concept of creativity may be understood, as Tardif & Sternberg (1991) explain, through each of Rhodes's (1961) accepted views of the creative *processes, persons, products* and *environment*, it becomes difficult to gather all approaches in a single definition, and as a creative person is always someone who makes or thinks something creative, it is easier to understand the construct through process/product-oriented definitions, like that of Amabile (1983) "A product or response is creative to the extent that appropriate observers independently agree it is creative (....) and it can also be regarded as the process by which something so judged is produced", or Stein (1953; 1974; 1984): "Creativity is a process that results in novelty which is accepted as useful, tenable, or satisfying by a significant group of others at some point in time".

Nevertheless, recent discussions about the concept of creativity (Isaksen et al., 1993; Boden, 1994, 1994a; Sternberg, 1995, 1996; Runco, 1990, 1995; Feldman et al., 1994) have contributed more to stressing its subjectivity, rather than its objectivity. Precise definitions, like those proposed by Stein and Amabile, are now being called into question, especially by cognitive psychologists like Sternberg (1991), who declares that "assessments of creativity are in need of serious reconsideration and especially broadening", bringing more and more doubts about the correct ways to interpret the construct.

Precision and broadness, objectivity and subjectivity, concept and construct, seem then to be in constant struggle and, as Isaksen & Murdock (1993) admit, we are still far from fully understanding what is really meant by creativity.

These facts, far from diminishing the scientific value of the construct of creativity, have been contributing to a better understanding of the phenomena involved, just by increasing its subjectivity. As Estrela (1990) states, " To distinguish between the objective and the subjective is, in itself, a valid form of objectivity"(p. 57).

Let us examine, then, the major sources of controversy.

Main Sources of Controversy

One of the sources of controversy is whether creativity is (a) a general capacity that influences an individual's performance across many domains, or (b) a widely diverse collection of skills and knowledge, each contributing to creative performance in only a single domain (Bamberger, 1990). For example, will a person who is creative when making a drawing show a similar level of creativity when writing a story? Lubbart (1994), for example, suggests that creativity is moderately but not completely domain specific, indicating typical correlation between .20 and .30; and Sternberg & Lubart (1995) maintain that "creativity it is neither completely domain-general nor completely domain specific". On the other hand, Nicholls (1972) states that "not only is the assumption of a normally distributed trait unnecessary (....) it is difficult to sustain"; Gardner (1994) considers that "individuals are not creative in general, but only in one or a few domains"; and Li (1997) even specifies the existence of *horizontal* domains, when most of their components are susceptible to novelty (e.g. music improvisation, modern Western painting), and *vertical* domains, when their essential components are highly restricted (e.g. chess, classical ballet).

Baer (1993), who argues strongly against the existence of a general creative capacity, claims that creativity theorists who favour domain specificity tend to focus on the creativity of the highest order - the kind of creativity that leads to eminence in a field; while those who view creativity as a more general trait tend to see creativity as a continuum, with genius at one end and everyday problem solving at the other. More recently, Plucker (1999) complemented Baer's assumptions, holding that the methods used to measure creativity may predetermine the results with regard to generality-specificity.

This discrepancy leads, as Sternberg (1996) recognises, to another and perhaps one of the more confusing sources of controversy, which has been not to distinguish between what Treffinger (1987) calls "big C" creativity, also known as "social" (Harrington, 1990), "genuine" (Nicholls, 1972), "eminent" (Richards, 1994), "higher sort" (Ghiselin, 1963), "special-talent" (Maslow, 1968) "high level" (Ausubel, 1978; Stein, 1987), "attributed" (Runco, 1995), or "historical" (Boden, 1994) creativity, which has to do with the extraordinary works of people considered as geniuses; and "little c" creativity, also called "private" (Harrington, 1990), "ordinary" (Arieti, 1976), "everyday" (Richards, 1994), "day to day" (Stein, 1987), "self-actualising" (Maslow, 1968), "psychological" (Boden, 1994), "small" (Feldman, Csikszentmihalyi & Gardner, 1994), "inherent" (Runco, 1995), which relates to the ways and processes that each ordinary person follows and uses for self development and problem solving.

Some authors, such as Dowd (1989), consider that only "big C" creativity may be seen as true creativity, stating that "the term 'creativity' should be reserved for activities or products that are truly original and break new ground"; and others, like Stein (1987), opine that "by applying the same word, creative, to every little thing that is novel or every minor deviation from the status quo, we risk the danger of erecting a tower of Babel". Nevertheless, scholars like Johnson-Laird (1991) affirm that it is possible to maintain interesting argument and discussions at the "little c" level of creativity, which may provide us with an understanding of what is involved in this phenomenon. Still others (Weisberg, 1986; Gooding, 1966; Perkins, 1981) adopt an intermediate position, considering that there is a continuum between everyday and eminent creativity, which represent basically the same sort of phenomena, in clear opposition to those who consider that the two terms represent different phenomena.

Sternberg & Lubart (1996), for example, show doubts whether the term "creativity" should be used for both levels, while Czikszentmihalyi (1994), Gruber (1981), and Gardner (1988) maintain that there are qualitative differences when pursuing both approaches as specific disciplines and in judging creative products derived from each one of them. Ludwig (1995) adds that the criteria for one may differ substantially from the criteria for the other, and brings into the discussion a series of clarifications of phenomena related to eminent and non-eminent forms of creative achievement, such as fame vs. achievement, artistic activities vs. creativity, nonconformity vs. originality, productivity vs. achievement, discovery vs. creative thinking.

If both conceptions are different, as to their theoretical construct and phenomena involved, and do not stand in a continuum, then it is necessary to examine each one of them, in order to fulfil the purpose of clarification, to which this chapter is devoted, and that is essential to the understanding of creativity in teaching.

Taking the aforementioned product/process-based definitions (Stein, 1953; Amabile, 1983), it seems that one important difference lies in the entity who makes the judgement about the process or product as revealing some form of creativity: the *person*, himself or herself, in an entirely subjective judgement; or, in a search for objectivity, *someone else*, either an individual, group, organisation, general public, or society, but normally experts in the field, or judges, as in Sternberg & Lubart's (1995) statement: "(...) creativity rating depends on the judges. It is a sociocultural judgement."

What seems to matter, then, is to decide whether "little c" and "big C" are just two opposing poles of a continuous scale, representing basically the same thing or, if not, which one best deserves our attention as a sharable construct for the purpose of this research.

Seen as a judgement, or attribution, about something, let us consider the conceptual limitations that arise when the evaluation is made by others (hetero), or by the individual (self), in an attempt to demonstrate that both refer to different aspects of creativity. While the latter can be said to refer exclusively to individual creativity, the former involves many other issues related with the attribution process.

Conceptual Limitations of Hetero-Attributed Creativity

Sternberg (1995) argues that creative people are recognised by the products they produce but, as Gardner (1994) explains, a product is not creative in itself, before being judged by expert individuals. So, as (MacKinnon, 1978; 1987) argues, it is through the analysis of creative products, that is, through "a determination of what it is that makes them different from more mundane products", that we must begin to try to understand the concept. Also Hausman (1987) mentions that " we must start with the product. It is by their fruits that we shall know them"; and Hocevar (1981) concludes that "a simple and straightforward inventory of creative achievement and activities appears to be more defensible than the more commonly used methods".

"Criteria", "experts", and "social context" are therefore key words in the definition of the construct, which will be examined in the following paragraphs, before proposing two designations - communication and innovation - that can be used when referring to the construct of creativity, seen as a hetero-attributed phenomenon.

The Criteria Used in the Evaluation

According to Besemer and Treffinger (1981), suitable valid criteria, to judge a product as creative, are difficult to obtain, since *novelty* is only a necessary but not sufficient condition, as Isaksen (1987), pointed out, quoting Briskman (1980):

> "(...) the novelty of a product is clearly only a necessary condition of its creativity, not a sufficient condition: for the madman who, in Russell's apt phrase, believes himself to be a poached egg may very well be uttering a novel thought, but few of us, I imagine, would want to say that he was producing a creative one." (p. 95)

Furthermore, Isaksen considers that it needs to be *relevant* and *appropriate*, while Jackson & Messick's (1965) add *transformation* and *condensation*, and Richards, Kinney, Bennet & Merzel (1988) insert *adaptation to reality* (outcomes must be meaningful to others). Amabile (1983) includes *useful*, *correct*, *valuable*, although mentioning that these criteria remain a subjective evaluation even if more factors are added, such as in Besemer & O' Quin's (1987) *Creative Product Analysis Matrix*. These authors suggest that groups of related *attributes* (term used instead of "criteria") cluster along three different, but interrelated dimensions: *novelty*, *resolution*, and *elaboration & synthesis*. Novelty, is the degree of originality of the product in terms of new concepts, new processes, or new materials used, grouping three main clusters of attributes - *original* (novel, unusual, unique, original, ingenious), *germinal* (trendsetting, influential, revolutionary, radical), and *startling* (startling, surprising, amazing); *resolution*, is the degree to which the product resolves the problem implied by its creation, with two clusters - *logical* (logical, makes sense, correct, relevant, appropriate), and *useful* (effective, functional, feasible, durable, operable, useable, useful, workable); finally, *elaboration & synthesis*, describing the stylistic attributes of the product, focusing on aspects of complexity or elaboration of the product's conception, refinement, synthesis, and elegance, shown in its manifestation, and grouping another three clusters - *elegant/organic* (harmonious, balanced, restful, just right, elegant, deep, subtle, unified, complete, refined, fluent, clear, organic), *attractive* (delightful, beautiful, charming, attractive, playful, spontaneous), and *well-crafted* (well-made, well-crafted, interesting).

These criteria, or attributes, can be further increased, or quantified, as in Magyari-Beck's (1993) subdiscipline of *creatometrics*, proposed to "solve the problem of measuring creative results whether they are scientific, artistic, practical, political, technical, and so on."

In contrast, authors recognize that it is an almost impossible task to set up objective criteria to qualify a product as creative. Amabile (1983), for example, says "for the purposes of empirical research, then, it seems appropriate to abandon the hope of finding objective criteria for creativity"; and Sternberg & Lubart (1996) reinforce her statement by stating that "there is no single objective standard for what constitutes creative performance".

In the end, as Miller (1986) puts it, a creative product is "something easy to recognise but hard to explain". In fact we can easily recognise a product as creative, especially in the arts, or in a domain that we know something about (Isaksen, 1987), but that does not mean that every one will make the same judgement, no matter what criteria we use, as to the level of creativity involved. Of course, what is considered creative by one person may not be considered as such by another person, as each one of us has different criteria for such judgements. Even if we take an example of a highly reputed masterpiece, like Einstein's *Relativity Theory*, Beethoven's *Fifth Symphony*, Picasso's *Guernica* or Marx's *Das Kapital*, we cannot be sure that everyone will make the same judgement about its relative importance, especially when not acquainted with the arts or science domains. This is why various authors (Hennessey and Amabile, 1991; Cziszentmihalyi, 1991) agree, on the definition of creative products, that their evaluation must be *made by experts in the domain*.

The Evaluation Made by Experts

A first doubt arises then, when we try to define what we mean by "experts in a domain", *domain* meaning (Cziszentmihalyi, 1991; 1994) "the parameters of the cultural system in which the creativity takes place" or, as in the interpretation of Gardner (1994), "a set of practices associated with an area of knowledge"; and *field* meaning (Cziszentmihalyi, 1994) "all those persons, rules and norms, that can affect the structure of a domain", or "individuals and institutions that render judgements about work in a domain" (Gardner, 1994).

Sometimes it is hard to name a certain group of people rather than another, as experts in a domain, because there are a whole lot of groups surrounding a creative product. Take, for example, the people who may have direct influence in the recognition of a painting as a masterpiece: the painter, and his or her previous art record; the gallery owners, or museum curators, who act as midwives to the production of art, are able to promote it and call people's attention to it; the art historians and art teachers, because they pass on the specialised symbolic information to the next generation; the art critics, who may influence people's opinions; the patrons and art dealers, who are responsible for allowing the artist to have better or worse conditions to pursue his or her work; the journalists, whether or not art specialists, who collaborate in building an image around the painter; the peer group of artists, who support or deny their colleague's value, define styles and taste; and finally, the people who come to the exhibitions, buy the paintings, talk about them and collaborate in the process of adopting and diffusing creative products.

An interesting example is provided by Kasof (1995b), when he describes the case of the 20th-century Dutch painter Han van Meegeren, who decided to prove his value by painting an original work (*The disciples of Emmaus*) and presenting it as an unknown Vermeer (one of the more famous 17th-century masters), which had been secretly owned by an Italian family for generations. The painting was considered a masterpiece, and the foremost expert at the time on 17th-century art, Abraham Bredius, declared it Vermeer's finest masterpiece. Later, when van Meegeren was imprisoned by forgery, this one and other "masterpieces" were simply thrown away as "mediocre" works of art.

If we take another example from the science domain, which people may consider more objective than the arts, as far as creativity judgements are concerned, we may reach similar conclusions, as the production of science is a complex phenomenon, which does not rely only on the people who "invent" the theories and concepts, but on many more people. As Ludwig (1995b) puts it, "science has progressed thanks to the work of astoundingly mediocre men", and "the individual genius is the functional equivalent of a considerable array of other scientists of varying degrees of talent" (Perkins, 1992). Kasof (1995b) provides another example, reporting the "experiment" run by Peters & Ceci (1982), in which they selected 12 articles published in psychology journals, by highly prestigious scientists, replaced their names and institutions and submitted them for publication in the refereed journals in which they had been published 18 to 32 months earlier. Of the nine articles whose true authorship was not detected, 8 were rejected, with 89% of the referees recommending against publication.

In the technology domain, product evaluation is also far from being a simple task: Quigg (1992), for example, mentions that in Japan more than 25 million inventions await recognition by the Japanese Patent Office. Reporting the objectivity of the criteria used to classify something as an invention (*newness, usefulness* and *unobviousness*), by the U.S. Patent Office, Huber (1998) explains how it is difficult for someone to be acknowledged without having the financial power to support the expense of several hundred thousand U.S. dollars, necessary to register and sustain the patent for a minimum period.

Even if we manage to define a set of field experts and a perfect scale, for the assessment of creativity of a certain product, we know that the experts may be, themselves, a barrier to the acknowledgement of true creativity, either because they are not able to understand the importance of the creation, or just because of their holding on to power. If the originality, or uniqueness, of the products conceived is too far ahead of its time, or hurts any established power, the people who produced it may well not be recognised at the time, either because they are not understood, or because of the existence of serious impediments to the communication of the discovery. Fryer (1996), for example, refers to "(...) when new work is so original that acknowledged experts fail to recognise its merits". Because of that, public acknowledgement may come very late in the lives of truly creative people, or even only long after their deaths, which brings us to the final issue of hetero-attributed creativity - historical recognition.

Historical Evaluation

We understand that it is hard to recognise as creative whose meaning people do not have the ability to capture, and we know that the process of recognition of creative products must be submitted to rather complex ways of communication, because, as Eysenck (1994) puts it, "Creativity is a threat to the great uncreative majority", and "there is nothing more painful than the pain of a new idea". Many eminent people, like Van Gogh, were recognised very late in their lives or, like Bach, Rembrandt, Botticelli or Mendel, only long after their deaths (Cziszentmihalyi, 1991).

It seems, though, that only time and history can really do justice to creativity, especially the kind that is quite ahead of its time, which brings us to the problem of how to recognise creativity through a creative product, when it is produced, and not only many years later. Various authors (Ludwig, 1995b; Albert, 1983) stress the fact that almost all eminent people were recognised as such before they died, even though they may not have been given as much credit as later on. A sort of correspondence between the creation and the preparedness of contemporary society to understand its full meaning seem to be the necessary ingredients for a successful promotion of a discovery, thus leading to a conclusion about creative products: its recognition is contingent on "some point in time", as Stein (1974; 1994) explains, that is to say, it is, to some extent, *context dependent*.

We also know that even if we take history as the true judge of creative products and individuals, we may become suspicious about it, as each society creates its own heroes and villains, and it is easy to build images far beyond the reality they represent. See, for example, the fame that Marilyn Monroe has nowadays, compared with others like Judy Holliday, who had a similar impact on the film industry, at the time; or James Dean who is still considered to have been a poor actor, and never came up with anything creative.

The phenomenon of reputation (the opinion of contemporaries, revised by posterity) is dynamic and cumulative, and it is difficult to explain why people with similar creative productions, like, for example, Freud and Havelock Ellis, Leon Blum and Churchill, Daguerre and Talbot (invention of photography), the Wright brothers and Carlos Drummond (first self-propelled aeroplane flight) are, at present, so differently known by the general public. A particularly interesting case is brought by Huber (1998), concerning the attribution of the invention of the telephone to Graham Bell, who registered his patent just two hours earlier than Elisha Gray, who invented a similar apparatus and remains unknown to the general public.

As Kasoff (1995; 1995b) explains, people tend to attribute creative behaviour to dispositional (personal abilities, traits, cognitive styles) causes, rather than situational (external: environmental, political) causes. Physical or financial handicap, precocity, simultaneous or collective discovery, early death, attractive pseudonyms or forename attractiveness and connotations, nationality, membership in the judges in-group or out-group, expressed opinions of other judges, market scarcity, adoption by certain age groups, are just a few of the mechanisms that may originate different social perceptions of creativity in people who produced similar creations. In fact, as this author maintains, the initial reception of the original product is perhaps the most outstanding area of ignorance about creativity.

We must still consider the problem of intercultural recognition. Even though there is probably some expert agreement, among people from various cultures, as to the evaluation of true historic creations (Lubart, 1990), the same does not apply to something less than historic, which leads to his conclusion that "(...) raters and norms from a culture seem to be the most acceptable method for the analysis of creativity in a culture". Different people, from different cultures, religions or races, show different criteria as to what they value as creative products, and if we take the people listed in an encyclopaedia, as an index of their eminence, we may find many more representatives of Western cultures, rather than other cultures, which at least represents a statistical impossibility of distribution of creative abilities among human beings. In a comprehensive study regarding eminent people, conducted by Ludwig (1995), he concluded that blacks constituted only 4% of the entire sample, and that Jews were over-represented.

Creative products acquire meaning only within a social context, because they need social validation.

As discussed in these three last paragraphs, the so called "big C" creativity seems far from being a universal, objective concept, and it is perhaps not worth striving for its objectivity, because it will always be possible to rate creative products within a specific context. Instead, it may be better to widen our comprehension of the phenomena involved, as proposed in the following paragraphs.

Hetero - Attributed Creativity as Communication

Creativity recognition includes many people in various roles of production, mediation and recognition, whom Stein (1974; 1993; 1994) names as *creators*, *intermediaries* and *appreciators*, making it very difficult to determine *who* must judge, *why* a certain judgement is produced, and *when* is the ideal time to make the definitive judgement as to a product's level of creativity.

A story told by Patton (1987), about the comments that the Master makes on a dispute between two students, may illustrate what may be involved in the recognition of a creative product, and the roles that each actor plays in the process.

> "One day a student near the end of his training came to Halcom. 'As part of my training, Master, I have participated in and observed a great many evaluations. I believe that I have discovered among these a type of evaluation that has not previously been identified in the literature. I want to give it a name and thereby leave my mark in the field.'
>
> 'It is not for me to pass judgement on the virtue of the new concepts,' Halcom explained to the young man. 'You must move among your peers and colleagues explaining your new concept to them. It is they who determine which concepts will become part of the profession and which ones will pass away unnoticed.'
>
> Following Halcom's advice the young man went to many seminars and held many discussions with peers and colleagues to advance his new concept. While his notions generated some interest here and there, for the most part those with whom he talked through his ideas were subsumed under other concepts and already taken care of by existing models. After a while the young man gave up his attempt to push the new concept. He completed his training and went forth to conduct highly successful evaluations.
>
> A number of years later his work brought him back to the site of his training. He dropped in on a seminar and listened with amazement as he heard a young student advancing a new concept to his peers. The concept was the very one he had attempted to introduce a number of years earlier. This time, however, it became clear that the new concept was being greeted with great acclaim and had already been accepted by the new student's peers and colleagues. Seeing this, the alumnus jumped to his feet and called for the attention of the assembled group.
>
> 'My fellow evaluators, students and colleagues, I am greatly heartened to hear you use and apply this supposedly new concept. I feel compelled to remind you, however, that it was I who first thought of this idea many years ago. I mention this now only to keep the record straight for those who follow us.'
>
> This led to heated debate between the two men over who should actually get credit for the concept, for the young student also believed the new concept to be his own original contribution. After all, he had introduced the concept based on his own experiences. To settle the conflict the assembled delegation went to see Halcom, sage evaluator and teacher. They explained the situation to Halcom and awaited his judgement.
>
> 'The prophet tells us that 'there is nothing new under the sun' and 'this too shall pass away.' Yet both of you believe that you have discovered something new and you hope that it will endure forever. Let us, then, consider the nature of the new concepts.
>
> 'There are many who pass through the world without seeing a certain thing. Then there are many who see the thing, but for one reason or another, never name or label it. Then there are those few who see this certain thing and name it, thus calling the attention of others to it. Then still there are those who see it, name it, and convince their fellows that the label is worth preserving and that

> the thing is worth seeing, thus giving special importance to the concept. Finally, there are many who follow the newly labeled concept but fail to really see or understand the thing and its importance.
>
> Each person plays a role in the nature of things. Some are given to seeing, some to naming, some to converting others, and some to distorting what others have seen and named.
>
> Being present at this time and in this place it is not our role to pass judgement on which of these deserves the greater credit. Future generations can look back and sort out the record. It is left to them to evaluate your new concept. Be content to understand your own role in these things. Be content to examine what it has been given unto you to do and see if you have done it well. Let others give credit where they will. You must decide for yourself, each of you, if what you have thought was useful and what you have done was done well.
>
> And, as a matter of only minor interest and no particular importance at all, I might point out - just for the record - that it was I who originally introduced the concept you've been arguing about, when I was a student many, many years ago, but I couldn't get anyone else to pay any attention to it at the time (p. 80-82)."

As Simonton (1995) realises, sometimes the attribution is made out of behaviours that have nothing to do with creativity, and this, in turn, can influence the person's behaviour, producing what the author calls a "feedback loop", in a dynamic linkage between behaviours and attributions.

And what sometimes is designated by creativity is little more than the ability to communicate and convince others, which, according to the words of Runco (1995), is not a good indicator of the ability to generate ideas, because the intrapersonal process of creativity may be independent of the expressive and attribution processes. Heizen (1995) goes further by arguing that "impression management is the sworn enemy of creativity", stating that "we adjust our personality to manage the impressions we make on others, for the express purpose of gaining social power".

To these statements, Kasof (1995b) objects by referring to creativity as a form of "persuasive communication" in which the creator is the source, the original product is the message, and the judge is the recipient or audience. And he continues by quoting Czikszentmihalyi (1988), in that "creativity is located in neither the creator nor the creative product but rather in the interaction between the creator and the field's gatekeeper who selectively retains or rejects original products", and Simonton's (1995) view that "as a source cannot be highly persuasive without having influenced large numbers of recipients, so a creator cannot achieve eminence without having had exceptional personal influence."

This communication view of creativity is also developed by Sawyer (1998), who sees it in its *interactional domains of teaching, parenting*, leadership, and mentoring, following Simonton's (1988; 1995) considerations that creativity and leadership represent the two most forceful routes to the display of exceptional personal influence, with creativity being "just another guise of leadership, with many of the same processes appearing in both phenomena".

The issue of the appreciator as a creative entity is further developed by Jones (1997), to whom what is created cannot itself come into being without those who preserve it, as understanding is always understanding differently, and the act of interpreting what is created, and making that interpretation meaningful to others, is also an act of creativity. Mace (1997) looking at art, also supports the social constructivist view that:

> "(...) theory and investigations are directed by those who are intimate with (produce, think about, describe) the phenomena in question - artists. In this way creativity and our thoughts about creativity are seen to have multiple, self constructed meanings that are actively created in a variety of ways through those individuals who engage in, and talk about, creativity. It is in this reflexive and person-construed way that phenomena gather their reality, rather than that reality being imposed objectively on individuals (p. 266-267)."

Hetero-Attributed Creativity as Innovation

According to the previous paragraphs, we may then have to study areas pertaining to the process of communication of creative products, either in their production, adoption, implementation, diffusion, or commercialisation (Kaufmann, 1993; Rogers, 1983; Spence, 1994), in order to understand the totality of the phenomena involved. But then the doubt arises whether creativity theory also includes the materialisation of the idea (the invention), and its communication and application (innovation), as in Kaufmann's (1993) distinction.

Even though Besemer & O'Quin (1987) regard invention and innovation as included in the creativity theory, they provide a clear framework to understand the distinctness of each of these concepts. In fact, once we speak of an idea, practice or object, whether in arts, science, technology or other domains, which is *perceived as new by someone else*, other than its originator, then we are probably talking about innovation, because communication is added.

Of course, as various authors (e.g. Torrance, 1970; Stein, 1974; Simonton, 1983) state, communication itself may be creative performance, but just as part of the process of putting an idea into use. Creativity does not end with an idea, it starts with it, says Parnes (1988), and Stein & Heinze (1994) reinforce Parnes' statement by arguing that creativity deals with the *process*, which does not have to end in an observable product but only with the *idea*. Innovation, here, starts and ends using creativity as the process. Communication may even be viewed as occurring first within the individual, as *a capacity to shift roles* (Stein, 1974), in which the creator develops a dialogue with his or her work, as a sort of anticipating the audience; but then there is still no perception of it by other people, and the idea cannot be considered as an innovation by anyone else but its author.

Rogers (1983), for example, defines innovation as something "perceived as new by an individual or other unit of adoption", and VanGundy (1987) as a "process of proposing, adopting, and implementing an idea"; and Kanter (1983) addresses the concept as "the putting to use" of an idea; West & Farr (1990), in turn, define innovation as "the intentional introduction and application within a role, group or organisation of ideas, processes, products or procedures, new to the relevant unit of adoption".

West & Altink (1996) hold that although innovation has been considered the domain of economics, it is within the discipline of psychology that the study of innovation perhaps most appropriately fits. This does not mean, as already stated, that it means the same thing as creativity. As social concepts, both creativity and innovation are applied at various levels - individual, group, organisation, society or culture - but while the term "creativity" appears related to the conditions which favour or hinder creative performance, or how it develops (Amabile, 1992; Ekvall, 1987), innovation appears connected to putting creativity in use. This way creativity appears connected to the individual, only, while innovation is used at the various levels. As West & Farr (1990) propose, innovation is a social process, while creativity is a cognitive individual process.

Even though authors like VanGundy (1987) state that innovation is not always creative, it seems that the former cannot exist without the latter, no matter what the level, context or degree of resemblance of the innovation, comparatively to what has already been invented, adopted or made an object of diffusion. If, for example, one decides to use a computer slide-projection as a tool for work presentation, which is a common device in places other than one's own, and that is perceived and adopted as an innovation by other people working in the same place, then, even though the initiator did not invent computer slide-projection, some creativity was needed to put to use and convince others to use a piece of equipment that had no already installed support system (e.g. adaptation between the computer and the projection system, room arrangement, need for additional budget, breaking away from normal slide projection), thus implying some creativity.

In the field of management innovation, even the Japanese way of copying others' inventions, refining them and achieving high commercial successes is now being considered a valid form of creativity (Bolton, 1993), even though not a very innovative one. This way creativity is given a wider sense, in order to understand the phenomena involved, together with what is connected with self-attribution of creativity, as discussed in the following section.

Conceptual Limitations of Self-Attributed Creativity

Having examined the limitations and connections of the theoretical construct of creativity as a hetero-attributed phenomenon, the following text will present different views about what was left untouched from the previous discussion, and has to do with the individual who creates: the existence of a specific *process*, which is characteristic of creativity; the need for *novelty* as a necessary condition; the view of creativity as growth, or *development*.

Arguing whether or not "process" and "novelty" need to be part of the construct of creativity, this section will end by proposing creativity as a concept that people use to describe the acts of every moment of existence, in what can be called implicit theories of creativity. This subjective view has been recently supported by authors like Runco (1993), Sternberg (1995), Sternberg & Lubart (1996), who have entered what may be called the "art" field of creativity, introducing the implicit theories as a means to explain the subjectiveness of a person's own conception of creativity.

As proposed by Runco, Nemiro & Walbery (1998), the bridge between creativity as a subjective concept, and creativity as a theoretical construct, may then rely on empirical techniques used by researchers to identify clusters of concepts among people, as a kind of transformation stable personal implicit theories into personal explicit theories about creativity, and then in consensual explicit theories.

Creativity as a Process

Since the early model of Wallas (1922), which considered the process of creation divisible into four stages (*preparation, incubation, illumination and verification*), many others have come to birth, although more or less related to this one, like those of Vernon (1970), Motamedi (1982) or Stein (1974). This framework, although providing interesting discussions and arguments, has contributed to maintaining an aura of mystery around the process of creation, with a special emphasis on the primary processes (Stein, 1974; MacKinnon, 1987), dealing with free associative, disordered, reverie-thinking, unconscious processes.

Authors like Weisberg (1986), Fryer (1996), Ochse (1990), and others claim that the illumination phase, or "stage", of illumination, insight, or "Aha!", are nothing but myths, and that no evidence has been found for the role of the unconscious processes, except in the subjective reports of scientists and artists like Paul Valéry (1972), Henry Poincaré (1929), James Watson (1968) or Kekulé, who, as in the words of Ludwig (1995), tend to bring about literary or poetic descriptions instead of scientific ones, because it cannot be otherwise. In contrast, Shaw (1994), Runco (1994), Csikszentmihalyi (1988), Gruber (1988) and others, stress the role that emotion, intuition, insight and other non-rational processes play in creativity, leaving a large field of investigation and reflection, unfortunately outside the reach of natural quantitative science, but probably much more interesting in the attempt to understand what creativity is really about.

Secondary processes, related to rational, ordered, reality-oriented conscious processes, form the basis of study for cognitive psychology and cognitive science. The former by applying existent knowledge of psychology in domains like motivation, attention, perception, memory, learning, thinking and communicating; the latter by analysing information processes that may be applied to computers and to decision making, like the processes of induction and deduction (Newel & Simon, 1972; Johnson-Laird, 1993), either in normal people or in what is called "Expert Performance" (Chi, Glaser & Farr, 1988; Ericsson & Charness, 1994; Ericsson, 1996).

Other processes, such as imagery (Khatena, 1987; Finke, 1990) and visualisation (Parnes, 1988), and especially problem solving (Hayes, 1990; Whitman, 1994) and creative and critical thinking (Paul, 1993; Kim, 1994; Nicholls, 1983), have been a target for research and study in creativity, leading us to wonder if there are secondary thought processes specific to creativity, or if creativity is a part of these processes.

This issue is supported by authors who claim that there is no specific secondary process in creative thinking, which does not require extraordinary individuals, or extraordinary thought processes. Weisberg (1991), for example, reinforcing his previous statements (Weisberg, 1986), argues that "there can be no thinking except creative thinking". Also MacCrimmon (1994) says that "the processes are not unique to a particular creative occasion (....) common processes are used by multiple persons and are found in many different domains". Ebert (1994) goes further by affirming that there is no single, generally accepted, definition of creative thinking - a designation that can be used interchangeably with "thinking", "problem solving", and "cognition"; and that "creative thinking may be considered as a characteristic of cognitive processing, and as such, as an attribute possessed by all who think (....) is not seen as something that one does or does not do, but rather as something that one does to varying degrees as a function of processing information." (p. 288). This may lead us to think that we enter the domain of creativity when the solutions that we find do not satisfy us, and then, by using exactly the same mental processes, we simply try harder. In an illustration provided by Abra (1997), Newton is said to have answered "by thinking on continually" when he was asked how he had reached gravitation theory through the example of falling apples. Garnham and Oakhill (1994), also agree that "the mental processes underlying creative thought are not essentially different from those underlying other kinds of thinking. Also, contrary to the view of divergent thinking as a specific process of creativity, Barron & Harrington (1981) claim that it goes "hand in glove with convergent thinking in every thought process that results in a new idea".

To some authors, like Rodhes (1987), an *idea* may be seen as a product of a creative thought process, "which has been communicated to other people in the form of words, paint, clay, metal, fabric or other material"; others, like Faris (1978), contradict this view by stating that the idea is just "what is perceived mentally and not through the senses. It may be objects, relationships among the objects, or mental images of those objects".

Again, the central point of the definition seems to be the recognition, by people other than its author, of a novel and valuable product of thought, or by just the one who had the idea, to whom the idea appears as novel and therefore valuable. Originality, in the sense of individuality, not novelty, seems to be the central issue, as discussed in the next section.

Originality as a Condition

Getting back to what was left untouched of the initial definitions of Stein and Amabile – the need of "novelty" as a necessary condition for creativity – we may see that several authors do not support this proposition. Abra (1977), for example, rejects the need for a creative work to be novel, separating two types of creators: *innovators* and *perfectors*. Also, Kirton (1989) argues that people do not approach the defining of problems in the same way, but in a continuum that is anchored at one end by an adaptive approach (ideas under the known setting - doing things better), and at the other by an innovative approach (ideas often go outside the problem as initially defined - doing things differently). As Gryskiezwicz (1987), and Rosenfeld (1989), point out, Kirton's research has been widely expanded and has contributed to the demystification of creativity. Brinkman (1999) stresses the importance to the shift from the notion of *level* (how much ability does the individual possess) to the one of *style* (how people process information and experience; how they use their creativity). This notion of style, which, as Isaksen & Dorval (1993) maintain, has its origin in the study of perception, represents a considerable advancement in the study of creative behaviour. This notion is further developed as a constructivist view, by authors like Strzalecki (1993), who sees a style as a "superordinate construct that is involved in many cognitive operations and which accounts for individual differences in a variety of cognitive, perceptual and personality variables", or as a cognitivist view of the intellectual styles (Sternberg & Lubart, 1991; 1992).

A story told by Albert (1983a), may illustrate this point better than further explanations:

> "I once saw a shepherd who used to divert himself by tossing up eggs and catching them again without breaking them: in which he had arrived at so great a degree of perfection, that he would keep up four at a time for several minutes (....) for by his wonderful perseverance and application, he had contracted the seriousness and gravity of a privy-councillor; and I could not but reflect with myself, that the same assiduity and attention, had they been rightly applied, might have made him a greater mathematician than Archimedes." (p. 86)

It is very likely that the shepherd, in Albert's story, perceived his behaviour as highly original, even though it was not novel to the observer. That is why authors like Johnson-Laird (1991) claim that "the product of a creative process must be novel for the creator"; and a similar position is hold by Welsh (1980), cited by Isaksen et al (1993): "it must meet the criteria of purpose and value established by the creator". In a recent book review of Baer (1997), M. Runco (1998) agrees with the former in that creativity is simply "anything that someone does in a way that is original to the creator and that is appropriate to the purpose or goal of the creator".

If true, this conception leads us to a much broader distribution of the phenomena among the population, and reduces the élitist character to which, sometimes, research in creativity tends to become limited, thus including many more individuals and activities that are usually left out of the field, such as athletes, performance artists (actors, dancers, musicians), craftsmen, or even illiterate people. Weisberg (1999), for example, presents findings related to the similarity of practice and immersion in the discipline of artists, scientists, musicians and athletes. Striving for improvement, or even perfection (the goal of life, as Sanford [1998] explains), whether it may perceived or not as novelty by others, is always an act of creativity. As in the words of Runco (1994) "the concept is indeed in a turning point towards generalisation and democratisation, which deserves the attention of creativity theorists."

These views challenge the last remaining terms concerning the definition of creativity - *process* and *novelty* - and leave us perhaps where we started: at Galton's initial construct of "motivation and effort", also supported by Runco (1995), although without its inherited nature, or personality-based trait definition. In this perspective, creativity may be seen as a matter of will, as the *trying to do better*, or *to be better*, leaving its process as a fully subjective concept, even though producing a series of sharable constructs. Albert (1983a), also advocates a "definition of creativity that does not depend on failure or success but on intention and effort". Or, to put it more simply, as in the words of Kokot & Colman (1997), "creativity is a way of being".

If, as Abra (1997) proposes, human beings are driven by nature to seek the Better and the Best, then we must search for all understanding of what is beyond creativity only in deep human motives, and in the ways each individual organises and incorporates the perception of reality in his or her self. And if, as this author claims, creativity is a natural drive of mankind, then, as he says, it "cannot be enhanced but avoided to undermine", with which Magyary-Beck (1998) agrees, when referring to creativity as deeply related to motivation and the kind of perceptual blocks so simply described by Adams (1986). Seeking for the "Better and the Best" involves a search for the ethical, and even though, as Menaker (1996) explains, any ethical formation of the character begins with the internalisation of traditional moral codes, it tends to end with autonomously expressed ideals derived from the individual, which may not coincide with social accepted moral codes. According to Heinze (1995), this is perhaps the main reason why people must not expect to acknowledge any inherent ethical value in other people's creativity, as its perceived ethical value depends only on the outcomes toward which creativity is being exercised and, therefore, on our likes and our dislikes.

Otto Rank's conception of creativity, as described by Menaker (1996), presents the human will as a central cause of action and creation. To him, "each individual is unique and carries within him or her the potentiality of creating something new, different and unexpected out of past experience (via the human capacity to internalise experiences of the outer environment) and making it a part of the self", and that "there are in the human being two contradictory wishes: to be differentiated as an individual and to lose oneself by merging with a larger whole". To this Viennese psychoanalyst, who broke away from Freud in the early 1920s (rejecting the notion of creativity as a sublimation of a sexual impulse), one fears the loss of the self and longs for immortality, and either by creating, procreating or identifying with an ideology one reduces the fear of death. Suffering (derived from the sense of guilt for separateness of the self from the larger whole) would then be the conscious awareness of death, which can be reduced by creating, which in turn increases guilt. And so the greater the artist, the greater the vulnerability to the feeling of guilt for separateness. The guilt can also be reduced by merging with the whole (e.g. by identifying oneself with a specific organization, a religious or political ideology shared by others, or a scientific community), but then creativity, as individuality, suffers.

Abra (1997) also sees creativity as a sort of compensation for the lack of something, in which the individual enters and starts to compete with no one else but oneself and one's personal standards, in a quest for identity and individuality.

The doubt remains as to the intentional nature of creativity, because, as Bruner (1979) holds, creativity is "an act that produces effective surprise" i.e. the product created by the individual appears as a surprise, made out of discernment and choice among many possible combinations, and driven by a passion that drives the attention to a superior discernment.

In the end, Amabile and Stein's definitions of creativity seem then to apply only to the hetero-attributed construct, to which the "little c" - "big C" creativity continuum can be adapted, whereas the self-attributed construct becomes limited to a continuous effort to improve, either as a human being, or what the person does. Again, to this latter construct, the "little c" - "big C" continuum also apply, but in the self-perceived view. Creativity seems then to be the process of communication between the creator (or the product) and the audience (hetero-attributed), or between the creator and the product (self-attributed); innovation seems to be more appropriate to designate the attribution made by the audience to the product. Again, quoting Czikszentmihalyi (1988), "creativity is located in neither the creator nor the creative product but rather in the interaction between the creator and the field's gatekeeper who selectively retains or rejects original products."

Summary

The term "creativity" can be seen either as a social concept, expressed by people's implicit theories, or as a theoretical construct, developed by researchers in the field. To see if it is possible to come out with a single unified construct, it is necessary to examine it first as explained in theoretical approaches and definitions, and then by looking at how people perceive it, especially when applied to an activity or context, as in this case of teaching in higher education.

Looking at its theoretical definitions, we may come to the conclusion that the construct of creativity was first (and still is) used in the litterature to designate something perceived by others, in what may be called "*hetero-attributed creativity*", which results in the construction of creativity as something pertaining to the *communication process* Due to the difficulty in overcoming its construct limitations, there appears to be a tendency, in some of the present literature, to see creativity as a "self-attributed" construct, getting back to Galton's initial construct, based on "intention and effort", and in the way the individual perceives reality and develops his or her individuality. In this view creativity is seen simply as growth, or development.

From early beginnings of discussion in the literature, till the currently accepted definitions of Amabile (1983) - "A product or response is creative to the extent that appropriate observers independently agree it is creative (....) and it can also be regarded as the process by which something so judged is produced" - and of Stein (1953; 1974; 1994) - "Creativity is a process that results in novelty which is accepted as useful, tenable, or satisfying by a significant group of others at some point in time" - the meaning of the term has evolved in many directions, giving rise to various sources of controversy in the literature.

One of the main sources is related with the need to separate between what is called "big C" and "little c" creativity, and to examine if these terms stand in a single continuum, mean different things, or apply to different constructs of creativity.

"Big C" construct limitations can be first examined as to the criteria used to define creative products, and it will be easy to conclude for the difficulty in establishing a single objective standard for what constitutes creative performance, or in leaving its assessment to experts in the field, or even to historical evaluation. The analysis of the construct of hetero-attributed creativity, proposed after Stein's (1993; 1994; 1995) designations of *creators, intermediaries* and *appreciators*, can also result in the conclusion that what is created cannot become into being without those who preserve it, either by understanding or communicating; as understanding is always understanding differently and the act of interpreting what is created, and make that interpretation meaningful to others (through communication processes), is also an act of creativity. Quoting Czikszentmihalyi (1988), "creativity is located in neither the creator nor the creative product but rather in the interaction between the creator and the field's gatekeeper who selectively retains or rejects original products."

Therefore, creativity may be considered as included in the "communication" and "innovation" processes, when seen as an attribution made by others, or as a self-attributed construct, when the judgement is made by the creator, himself or herself. Each one of these two views is compatible with the "little c - big C" creativity continuum, even though "creativity" remains an individual process that it is present in the creation process, as well as in the attributions made.

As to the conceptual limitations of self-attributed creativity, still seen after Stein and Amabile's definitions, it is possible to conclude that neither the process, nor novelty, need to be part of the construct of creativity, as the former ("process"), either primary or secondary, and the latter ("novelty") do not stand up easily after recent literature criticisms.

Primary thinking processes are difficult to define and examine, and secondary thinking processes may be seen as something that one does to varying degrees, as a function of processing information. Even though the style of thinking may follow a continuum, which is anchored at one end by an adaptive approach, and at the other by an innovative one, what a person does while thinking is just to process information at various levels, in a way that leads to the definition of creativity as just "anything that someone does in a way that is original to the creator and that is appropriate to the purpose or goal of the creator". Originality, meaning individuality and therefore a subjectively construed concept, not novelty, remains the core characteristic of the construct of creativity, as novelty is dependent upon the perceiver, and contains many more phenomena besides those related to creativity.

Recognising creativity as a self-attributed concept, which people use to describe the acts of every moment of existence, is like using implicit theories of creativity to understand that what is beyond creativity lies in deep human motives, and in the ways each individual organises and incorporates the perception of reality in his or her own self. Striving for mastery and perfection, in the expression of someone's own individuality, and to the sharing of that expression with others, becomes the core construct of creativity, which may then encompass a wider array of activities, products, processes and performances.

CHAPTER TWO

THE CONSTRUCT OF CREATIVE TEACHING

In the previous chapter the definition of term "creativity" was seen as lacking construct validity when examined in the scientific literature, while the concept used by laypersons, even though imprecise, was seen as carrying meaning in everyday speech, and as being widely shared. If this is so, with the definition of creativity, moreover it is when the term is applied to designate an activity, first as an adjective, and then by developing a specific construct, and a social concept, as in the case of creative teaching.

Defining the construct of creative teaching is then the main purpose of this chapter, but although directed at teaching in general, this investigation concentrates on teaching in higher education, which differs in some ways from the other levels of education, as to the role of the teacher (e.g. the researcher role) and the type of relationship that is maintained with adult students, whether graduate or undergraduate.

It is then inside the higher educational context that the definition of creative teaching will be attempted, starting from the construct of a creative person as someone who tries to improve in what they do, as presented in the first chapter, and discussing the role of teachers as they progress to achieving more excellence in teaching.

Teaching motivations, as well as the construction of the role of a higher education teacher, will be examined in the light of creativity as individual growth, moving then to the discussion of the construct of creative teaching, as seen in the literature, either by presenting its definitions, or by separating it from the construct of "effective teaching", or even by distinguishing it from its opposite forms, "uncreative" and "ineffective" teaching.

As both constructs, creative and effective, tend to be seen as synonymous in the literature, and to fall into the "ideal teacher" trap, with little heuristic value for research, the way that effectiveness and creativity are perceived in teaching by its main target population - the students - is discussed, in an attempt to devise a construction of the term that may be validated throughout the remaining investigation. Creative teaching, as a process of communication, will then be examined in this chapter, as an hetero-perception of teaching aimed at student development.

Teaching Motivations in Higher Education

The effectiveness of any system of higher education is contingent upon the quality of the teaching, and the occupation of teacher at a university is widely viewed as providing good opportunities for identity formation and performance satisfaction, and is high in public prestige. Nevertheless the general public and even the academic world (i.e. university managers, administrative personnel) are not totally aware of the tasks that faculty members must perform in their work and about the nature of the occupational life they typically follow. In fact, as Bess (1997) comments, this type of work is exceedingly difficult and requires a dedication to tasks that is initiated and must be maintained by strong motivation, not always easy to obtain and, above all, to sustain during a considerable period of one's life. Pacheco (1995), for example, considers the work of research and class preparation as a solitary one, requiring long hours of isolation and reflection, which may not fit everybody's personality.

There is extraordinary satisfaction to be obtained in university teaching but also many frustrations and although, as Mackeachie (1997) says, college teaching is seen as high in intrinsic interest in work, most faculty suffer from role strain and role overload: they are required to perform a great many tasks in a limited time frame, a fair number of which they do not like or are relatively unprepared to do. It is well known, for example, that faculty are poorly trained to perform as teachers, and although better prepared to do research, there are frequently many frustrations in that work, stemming from inadequate funding, poor research facilities, insufficient or conflicting colleague interaction, and administrators who impose unrealistic evaluation criteria (Bess, 1997). Unfortunately, the extraordinary potential of teaching and the evidence of its realisation are negatively affected by custom, norms, and formal role expectations; also, to some extent, by insensitivity (due mainly to lack of training) to classroom activities and to other aspects that should give pleasure to teaching. As Fernald (1995) explains, "teaching is like getting paid to eat ice cream", but that is for those who are able to find satisfaction in that role; to others it may be very frustrating. Teaching well is very hard to achieve: it requires high energy, focus and total commitment, and necessitates a continual testing of self as presumed expert in one's field and in the field of education.

Taking into consideration that not every college teacher finds success in research, or even, as Simonton (1984) has demonstrated, that the abilities required to perform this role properly decline with the ageing process. Also, if as Crader & Butler (1996) affirm, the routinization of the teaching experience contributes unfavourably to teaching effectiveness, then it is easy to imagine the kind of frustration that may arise if one cannot find satisfaction either in teaching or research, making instead an investment in other areas (e.g. administration), in order to maintain a sense of purpose and satisfaction. This is probably why, as Sinnot (1996) recognises, the great majority of faculty are not seen as pursuing a creative approach to teaching.

The Role of a Teacher in Higher Education

Higher education teaching tends to be split by the competition between research and teaching, as a means to evaluate what may be defined as "faculty scholarship", which according to Sundre (1990), has been used as a synonym for "research publication", "publication productivity", and "research activity". Especially in the last 50 years, there has been great expenditure on investigating the predictive power of the characteristics of productive scientists and of their work environment on research productivity; this investigation has relied heavily on quantitative indicators, such as the number of published articles in professorial, refereed journals, citation counts, or a total of grant funding awarded. Even though the primary roles of a faculty member have been described as those of teacher and researcher, the assessment has been so limited to the latter role that teaching has tended to disappear, as the dominant reward system favours only the publication of journal articles, which according to Feldman (1987), is a very weak indicator of teaching effectiveness, and may also be subject to controversies about authorship problems, especially during earlier career paths, as Murray (1998) observes.

Competing demands upon teachers seem to be rising in today's university, as Sinnot (1996) recognises, increasing the role stress upon the teacher, as described by one of its representatives:

> "As a professor, I am asked by my students, my discipline, my colleagues, and my nation to teach much and well; discover and disseminate new information to colleagues, students, the public, and fellow professionals in the field; be an expert consultant for the public needing my information; provide my expert services, possibly free; bring money into my institution; govern my institution, department and profession; prepare students for jobs; advise students about life and careers; trade ideas often with my colleagues; justify my existence to whomever pays my salary; accept diminishing wages cheerfully; and look poor to parents and students, prosperous to business and policymakers, intellectual to professionals, and administratively practical to grantors. Multiple demands are interesting, hard, and challenging. I won't meet them all well. We university professionals are set up to fail. We can't be all things to all users (p. 47)."

Given such competing demands one cannot help concluding, as Diamond (1993) does, that the "problems of the institution and the needs of the students are not the top priorities of faculty" (p. 17).

Nevertheless, in a field investigation conducted by Sundre (1990), with a sample of over 1,000 faculty respondents to a questionnaire, the first and most important factor of faculty scholarship appeared to be related to pedagogic activities, and teaching as the primary responsibility of faculty. In this study, research has come out as an independent dimension of faculty scholarship, and related to concerns largely external to the campus. It looks as if even though everybody agrees on its importance, the system is not prepared to give credit to excellence in teaching.

Some universities, Murray (1995) states, are moving to put teaching and research on an equal footing, and many are making good teaching part of departmental policy. The twentieth century has brought new demands upon universities, as they have struggled to adapt to a very competitive environment, and authors like Hall and Bazerman (1997) think the next century will bring a shift to a new domain of competition, which is the classroom and the curriculum, and that universities are being pushed to demand excellence in the classroom; MacKeachie (1996) also thinks that future trends will favour undergraduate teaching. But then, given the need to evaluate and reward this excellence, at least two problems arise: how is "excellence" to be defined, and how should it be evaluated?

Role Improving

Teaching is probably an activity like playing the guitar: an easy instrument to play badly and difficult to play well. That is probably why higher education teachers feel they do not need to go through some kind of training to be able to do something they have watched for such a long time: in a way they have developed what be designated by "common-sense teaching", as in the words of Persson (1998), "a kind of teaching that relies not on empirically derived models of knowledge but rather on tradition and lore". They most value research, and think they have the necessary skills and knowledge, because to them content, not communication, is the most important thing, which might not please authors like Wojtjas (1996), who claims that being a good communicator comes first.

In a way, teachers probably think they perform well enough, partially because they do not value communication very much, but also because they have trouble in recognising good teaching according to other criteria than the one they have always been used to. Someone who has gone through a difficult path of study and reflection (as Phillips and Pugh [1994], remind us, a PhD is a "licence to teach"), probably does not feel the need to go through specific teacher training, about whose effectiveness the teacher may have some doubts. We can say the same about being a leader and leadership training, although the requirements of business and industry for good leadership have produced great improvements in leadership training.

But if this is so, that is, if teacher training does not make much difference, how does one really learn to be a teacher?

Harrin (1993) stresses that the images of teaching held by students directly influence the way they are going to teach, especially the images taken from teachers who taught the same subject that the student is going to teach or, as Pacheco (1995) explains, from more recent teachers. These images tend to be immature and inflexible, and a poor basis for the process of professional development, and so that is one reason why future teachers must be given the opportunity of examining this process during teacher training periods.

As discussed, higher education teachers have always reacted against teacher training courses, as they tend to show lack of quality and be positivism-oriented (Reto, 1996), leading to impossible approaches of the "ideal teaching" concept, and because, as Jesus and Paixão (1995) explain, initial training tends to promote unrealistic expectations and an idealised image of what a good teacher must be or do. Due to these unrealistic expectations, young teachers tend to think, as Schwebel, Schwebel, Schwebel & Schwebel (1996) report, that they give boring lessons and do not involve students actively, while experiencing difficulties in distinguishing role distance from being a close friend, because, as they know that a teacher is not a friend, but just someone who exhibits friendliness, that is, an attitude of interest in the students' welfare and support for their efforts, they tend to find difficulty in balancing these two factors during the process of construction of role identity.

Moreover, for those who go through a period of supervised practice, what they see, according to Pacheco (1995), with reference to high school teachers, is that the practice of teaching tends to seem the opposite of educational theory, as the emphasis turns out to be on maintaining distance, being tough and a student controller, in a conservative way, very far from the progressive views expressed in the theory. According to this author, once the young teacher starts the profession, the whole process of socialisation tends to lead the newcomer (considered as one with less than three years of experience) to lose the idealism of independence, discovery and exploration, in favour of belonging to a professional group where those aspects are not important. Believing that the process is not very different in higher education, this is probably the reason why, in most cases, the young teacher either chooses to be accepted by the rest of the faculty, and submit to its rules, or to be independent and centred on the teaching and the students, and then isolation becomes a real possibility. Again, Torrance's (1995) words, stated in the Introduction "Great teachers will have to live with the fate of being fired, discredited, isolated or their funds being withdrawn (p. 109).", become a bitter truth.

Teacher training systems, in comparison with other kinds of behavioural and attitude training, like leadership training, seem in great need of improving their effectiveness, especially if seen from the point of view of the students, who tend to favour communication before content, as Pasarella & Terenzini (1991) claim. But then, will the content suffer too much, in favour of a more effective communication? Is it possible to become an expert in communication with the audience, and still maintain the standards and originality of the content, guaranteed mainly through research? Again a possible answer has been discussed in the first chapter, when evaluating the elaboration of creative products and the success in communicating them to others. In fact, there is no shame in reproducing what others have discovered and organised, as the effectiveness of its communication to an audience is also a creative act, as Stein (1975; 1993) holds when discussing the role of intermediaries.

If one opts to be submitted to some kind of teacher training, it is possible that some effectiveness may be gained from it. For example, as Vance (1993) maintains, every possible method may be applied in ways that move towards excellence, and a teacher may become an expert in the use of a certain method, adapting it to specific constraints and personal characteristics, providing that the proper training is given, or that the person decides to learn alone. Through the study and use of a structured method it is possible to understand better the whole process of teaching and learning, moving then to other methods, or personal constructions of a method; in other words, to building one's own style.

This personal construction of the role and style is the creative part of teaching and, as will be discussed later in this chapter, must be directed to "producing" creative students. Being close to the students, that is, learning to communicate in their own "language", and continually improving one's role while adapting to an ever changing student population, on the one hand, and keeping up with the requirements of a more conservative staff, on the other, is a tough challenge that not many people are able to balance in equal terms.

The kind of training that has been proving successful with creativity seems to be a possible answer to this problem. For example, Isaksen and Parnes (1992) mention how creativity training programs developed the teachers' ability to deliver more effective lessons to their students. Also Davis (1987) suggests that being submitted to the teaching of creativity leads the person to internalise creative attitudes, to reinforce creative characteristics, understand the topic of creativity, understand principles of creative problem solving and creative thinking, learn creative thinking techniques, and become involved in activities of creative thinking. Other teacher training programmes, mentioned by Covington (1968), Shaw (1986) and Cropley (1992), point to its effectiveness in changing the way teachers deliver the subject matter, without requiring a considerable period of training and study. Unlike other courses in pedagogy, the teaching of creative teaching techniques leads the instructor to practise what is being taught, not at all on a sort of basis of "do as I say, not as I do".

A doubt arises then whether creative teaching is simply the use of specific techniques, and, if so, whether it corresponds to an effective way of performing the role of a teacher in a higher educational environment. This will be the purpose of the following sections.

Creative Teaching

If it is almost impossible to reach agreement as to what "good" or "effective" teaching means, as authors tend to diverge between both poles - traditional and progressive, or teacher-centred and student-centred -, comparing the worst of one against the best of the other, mixing personality traits, teacher behaviours and styles, teaching methods and techniques, and classroom management tips. A more precise construction is then necessary, to provide for common understanding, and one possibility may be to use the concept of "creative teaching".

One distinction that must be made is between the creative person who happens to be a teacher, and the act of teaching in a creative way. A painter, for example, may be a highly creative artist, but not necessarily a creative teacher, although he may exercise both professions. Even the teacher who inspires students by a personal example of creativity may not be the person this text is dealing with. As Torrance (1962) mentions, the type of teacher who manipulates students through creative self-expression does not lead to their significant development. In fact, as Stein (1994) relates, few differences were found in students' creativity whether they had creative or uncreative teachers, while "those who were the pupils of teachers skilled in good relationships were more likely to be better off in using what they learned (p. 175)."

Concepts and Definitions of Creative Teaching

As happens with the concept of creativity, people tend to have their own images of the meaning of creative teaching, which do not necessarily coincide with the specialised literature. Fryer and Collings (1990; 1991), for example, reported that, in a study with more than 1,000 British teachers, from various educational levels, the vast majority tended to view creativity as "divergent thinking", and only a tenth recognised that it also involved convergent thinking; Fryer (1996) also points out that people tend to see creativity as arts related, not science related, and that if the respondents to the questionnaire had been provided with a definition of creativity, "the differences in the way the various groups of teachers perceive creativity would not have become apparent." (p. 34).

When looking in the literature for definitions of creative teaching, the majority of the authors who write about it avoid providing such a definition, preferring to list series of behaviours, approaches or strategies that characterise creative teaching. Paul Torrance, one of the main researchers in this field, never provided such a definition, but only of creative learning, which is not the same as creative teaching.

It is possible, though, when looking at the existent literature, to find examples connected with different approaches: one is the use of *creative methods and techniques*, as in the definition proposed by Mayer (1989) "creative teaching refers to instructional techniques that are intended to help the students learn new material in ways that will enable them to transfer what they learned to new problems" (p. 205); another is *the development of students' cognitive abilities*, as in Whitman's (1994) definition, "teaching students to use strategies for representing and processing new information in ways that lead to problem solving transfer" (p. 5), or Osborn's (1992), "the type of teaching which causes students to think as they learn" (p. 51); and one directed to *relational and emotional aspects*, as in the example of Slabbert (1994), "creative teaching is to be sensitive to the individual's conception of himself and his role in the classroom" (p. 23); still another related to *classroom environment*, as in the definition proposed by Bozik (1990), "is to make classes contemporary and stimulant; innovation, variety and challenge must be apparent"; or the classical teacher-centred view of creative teaching as "inventive flexibility" (Halliwell, 1993, quoted by Craft, 1999), that is, to "be able to identify needs clearly, read a situation, preparedness to take risks and capability in monitoring and evaluating events".

Even though expressed in different ways, they complement each other, so that some of them seem more directed to communication (relational and emotional aspects) with the students, or to the development of their cognitive abilities, while others stress the innovative aspects brought by the teacher, either by the use of new methods and techniques, or by managing the classroom environment. Even though both are highly connected, we can perhaps describe the former approaches (communicational; relationship aspects) as being more student-centred, and the latter (innovative; task centred) aimed mainly at the teacher.

If we look at the first approach - the use of creative teaching techniques - the literature provides a vast amount of examples of using specific materials, classroom arrangements, or programs, designed to increase the students' cognitive abilities, as well as whole-person development, described further in this text in a model from Treffinger (1983). As Arnold (1992) enumerates, a series of creative teaching techniques, derived from CPS (Creative Problem Solving) methods, have proved significant in changing the way teachers teach, as earlier discussed. Although this is probably the most popular association that people make with creative teaching - the use of specific techniques - they are just a means to provide for what is stated in the remaining definitions - cognitive and affective aspects in learning.

The definitions are then complementary, and if they are, their merging originates so inclusive a view that it has little value for providing an understanding of what is involved in creative teaching, as a specific kind of teaching.

So, in the end, do people perceive creative teaching in a more objective way than effective teaching? And does the literature provide for more objectivity in understanding what creative teaching really is?

To answer these questions we must go back a little and try to see the origins of research in creative teaching.

The Movement Towards Creativity in Education

The movement towards creativity in education, born of the initial post-World War focus on gifted and talented children, was led by the United States; Stein (1986) enumerates people such as Paul Torrance, J. P. Guilford, Wallach and Kogan, Getzels and Jackson, Renzulli, Treffinger, and others. This movement has spread to other countries and has been adopted at further educational levels, in a sort of opposition to the so called traditional style, mainly around the development in the students of Guilford's original divergent functions: fluency, flexibility, originality and elaboration. As creativity theory evolved beyond divergent thinking techniques, so did its applications to education, which began to include all possible improvements of an education for the future, in opposition to the traditional approach, as in the Isaksen and Parnes' (1992, p. 427) comparison list, as follows in Figure 1:

As may be seen in this comparison, similar to the distinction that Entwistle & Marton (1989) make between *surface learning* and *deep learning*, the creative approach leads teaching and learning to a much broader perspective, "defeating" completely the traditional approach. Nevertheless it fails to provide the latter with a sense of purpose, or even to consider it, sometimes, as a necessary step to arriving at further stages of development. As Berger and Luckman (1976) explain, if the traditional approach may be blamed for its apparent ideology (ideas serving as weapons for social interests), the creative one is probably too utopian (context-free knowledge, divorced from reality), and the best way lies probably in the middle, as Cropley (1992) advises.

“Traditional assumptions	*Creative assumptions*
1. The student goes to school to acquire knowledge which has existed for a long time and is handed down on authority.	1. The student goes to school to acquire skills which enable him/her to continue learning to deal with unknown/unpredicted events and challenges. Part of these skills involves the ability to acquire data (knowledge) necessary for the task in hand.
2. Subject matter taken on authority is educative in itself.	2. Subject matter provides the raw material for learning but has value only when put to use in relevant and meaningful ways.
3. The best way to set out subject matter is in unassociated fragments or parcels.	3. The best way to attain knowledge is through active, experiential learning in a setting meaningful to the individual.
4. A fragment or parcel of subject matter is the same to the learner as to the teacher.	4. What is relevant, meaningful and sensible to the learner varies according to each individual's background, experience, characteristics and needs.
5. Education is supplementary to and preparatory to life, not life itself.	5. Education involves growth, and is, therefore, a component of living.
6. Since education is not present living, it has no social aspects.	6. Personally meaningful learning involves interaction and effective communication with others.
7. The teacher can and should furnish the purpose needed for the acquiring of knowledge.	7. The learner's needs and involvement provide the initial purpose for creative learning.
8. Working on tasks devoid of purpose or interests is good discipline.	8. It is important to involve the learner in choosing tasks which are interesting and have relevance for the learner, or to find ways of making given tasks interesting or purposeful to the learner.
9. The answer to the problem is more important than the process.	9. While solution to problems may have immediate importance, learning a problem-solving process has great long-range importance.
10. It is more important to measure what has been learned than it is to learn.	10. It is both possible and important to document the impact (effect) and value of creative learning.”

Figure 1. Comparison between “traditional” and “creative” approaches to teaching (Isaksen and Parnes,1992, p. 427)

As presented, creative teaching seems to have been recollecting elements from teaching movements that were trying to react against poor teaching practice. It may then be more easy to characterise it by what it is not, rather by what it is.

The comprehensive Treffinger (1980) creative learning model, here reproduced in Figure 2, also aims at higher levels of developmental goals than did the original divergent thinking and simple creative personality characteristics (Level I); it thus becomes liable to create a feeling of frustration in a teacher who does not feel able to get even part of it from the students.

Nevertheless, as mentioned earlier, what is shown in the model is aimed at learning, not teaching; it only becomes much more demanding upon the teacher, if one assumes that all of the learning is the teacher's responsibility, which is not the case, especially in higher education.

Cognitive Independent inquiry Self-direction Resource management Product development "The practising professional"	**Level III** **Involvement in Real Challenges**	***Affective*** Internalisation of values Commitment to productive living Toward self-actualisation
Cognitive Application Analysis Synthesis Evaluation Methodological research and skills Transformations Metaphor and analogy	**Level II** **Complex Thinking and Feeling Processes**	***Affective*** Awareness development Open to complex feelings Relaxation, growth Values development Psychological safety in creating Fantasy, imagery
Cognitive Fluency Flexibility Originality Elaboration Cognition and memory	**Level I** **Divergent Functions**	***Affective*** Curiosity Willingness to respond Openness to experience Risk taking Problem sensitivity Tolerance of ambiguity Self-confidence

Figure 2. Treffinger's (1980) comprehensive creative learning model

This danger of frustration in someone who tries to pursue creative teaching may also be expressed in the personal qualities approach to teaching, as described in the following sub-section.

The Creative Teacher's Characteristics, Behaviours and Classroom Activities

Torrance and Safter (1990) start the list of a creative teacher's characteristics with "performs miracles" and "inspires the students", which is by no means within the reach of the vast majority of teachers. Referring to personality traits, Torrance (1962; 1968; 1990) mentions, "capacity to form good relationships with their creative students", "hard workers", "nonconforming", "childish at times", "does not work for status and power", "likes to be appreciated", "adventurous", "unpredictable"; and Cropley (1992) enumerates "inclined to be flexible and willing to 'get off the beaten track'", "resourceful in introducing new materials and in finding ways to present knowledge to students", "capable of enjoying good relations with all of their students but inclined to have particularly good relations with highly divergent ones", "likely to be non-conforming and even critical and fault finding in their relationship with their colleagues", "self-critical and frequently dissatisfied with themselves and the system in which they are operating".

As to behaviours, Walberg (1991) mentions "encourages students to be independent", "acts as a role model", "assists students outside the class", "accepts students as equals", "rewards directly the student's creativity or work", "has an individualised approach", and also enumerates the characteristics of those who do not "facilitate" creativity in the students: "rejects creative ideas from students", "hypercritical", "sarcastic", "non-enthusiastic", "insecure", "dogmatic", "non-actualised", "non-available". Alencar (1994), consider "cultivating the interest in discoveries and new knowledge", "stimulating the students' initiative, self-confidence, new ideas, curiosity, independence and critical ability", "leading the student to understand divergent perceptions of a problem, allowing him to disagree with the teacher's points of view", "diversifying the teaching methodologies", "treating students as valuable individuals", "contacting them outside the classroom"; Timberlake (1982) also lists "encouraging students to do things they have never done before", "to write their own stories or poems", "to protect creativity from criticism and ridicule". Torrance (1997), in his test *Opinions on creative learning and teaching*, develops 50 items like "teachers should at times encourage pupils to think of wild ideas", "the presence of a group stimulates many pupils to think of original ideas", "it facilitates important learning for pupils to try to imagine or visualise things they cannot actually see";

Instead of personality characteristics or teaching behaviours, and shifting the focus from the teacher to the student, we find all sorts of lists that try to select the most appropriate classroom strategies and environments designed to promote creative learning. Torrance (1990), enumerates "confrontation with ambiguities and uncertainties", "awareness of a problem", "building onto existing knowledge", "concern about problems", "stimulating curiosity and wanting to know", "familiar made strange or strange made familiar by analogy", "freedom from inhibiting sets", "looking at the same material from different viewpoints", "ask provocative questions", "predictions from limited information", "purposefulness of activity made clear", "structured only enough to give clues and directions", "creative personality characteristics encouraged", "visualisation encouraged", "time for incubation", "the importance of praise and creative evaluation". The same author, in his test *What makes a college of education creative?*, adds 146 items like "there are many opportunities for the 'on-the-scene' activities where the action is rather than a 'classroom bound' expectation", "original research is encouraged throughout the undergraduate years", "students feel free to ask questions, express ideas, etc.", "there is time for the pursuit of creative achievements both in classrooms and out of class", "there is a program of lectures and seminars which brings to the campus each year 10 to 15 of the greatest thinkers in the world", "students participate in the planning of courses regarding goals, learning activities, methods of evaluation, etc.", "course requirements make creative thinking necessary", "there are special rewards and recognition for creative achievement for both faculty and students", "instructors are respectful of the ideas of students", "students take some work in a creative field such as music, art, writing, movement, drama, invention, etc.", "individual differences are welcomed and used".

The listings of personality characteristics, behaviours, and activities designed to promote creative learning are considerable, and so more doubts arise as to what really makes the difference between creative teaching and any other kind of effective teaching.

Creative Teaching Techniques

When searching for techniques, we can find possibilities that go beyond the "traditional creative" divergent thinking and problem solving techniques, but that belong to other fields of research besides creative teaching, as in the case of simulation and games (Greenblat, 1988), experiential learning (Pfeiffer & Jones, 1974), to name just two. If we search for other sources of literature, which came out of cognitive psychology and cognitive science, many more techniques can be obtained, as in the teaching of problem solving (Parnes, 1992; VanGundy, 1983; Whitman, 1987; Isaksen, 1987; Isaksen, Dorval & Treffinger, 1993; Isaksen and Treffinger, 1985; Isaksen and Parnes, 1992); and the teaching of thinking - creative and critical (Nickerson, Perkins and Smith, 1985; Beyer, 1987; De Bono, 1978; Garnham and Oakhill, 1994; Halpern and Nummedal, 1995; Halpern, 1996; Erdos, 1990; Davis, 1991).

Still another source of confusion in understanding what creative teaching arises when authors in the field of creative teaching write about techniques outside divergent thinking and problem solving ones. Torrance, Murdock and Fletcher (1966), for example, in a text about the use of role playing in education, give notice of nine possibilities (Soliloquy, Double Technique, Audience Techniques, Multi Double Techniques, Mirror Techniques, Role

Reversal Techniques, Magic Shop and Magic Net techniques, Future Projection and Future Soliloquy Techniques, Future Double Techniques) within role playing alone, apparently moving away from the initial divergent thinking programs, also listed by Torrance (1995). It happens frequently, also, that authors deal with concepts taken out of other movements in teaching, as Treffinger, Isaksen, and Firestien (1983) warn (i.e. experiential curricula, democratic instruction, humanistic and affective education, futures) and, as they are connected with the creative teaching movement, there is the possibility that people associate these concepts with creative teaching just because the author is related to research in creativity.

The frontier between creative teaching constructs and techniques and other kinds of constructs and techniques becomes more and more blurred, as the sciences of education develop.

These listings of personal characteristics, teaching behaviours, classroom strategies, and teaching techniques lead us to conclude that there exist various possible theoretical constructs of creative teaching, depending on the approaches analysed (characteristics, behaviours, techniques, environments), and also that the danger of falling into the trap of the ideal teacher still persists, as the literature tends to include a vast array of material dealing with effectiveness in teaching. The conception of creative teaching becomes very broad then, and tends to include all that may be put under the umbrella of effective teaching, leading people to infer that creative teaching, as seen in the literature, is the same as effective teaching; and this effectiveness demands much more than is in fact possible.

The danger lies then in making a direct analogy between less-creative teaching and ineffective teaching, which may not be true. In fact effectiveness may be a characteristic of creative teaching, and less-creative teaching may also be effective, depending on the circumstances.

That is why the following sections will be devoted to the discussion of what is meant by "effective teaching" in the literature, as well as to its opposites - "ineffective teaching" and "uncreative teaching" - and to the ways both creative and effective teaching can be identified and evaluated as perceptions of teaching.

Effective Teaching

Even though, as Fernald (1995) points out, no single profile has been identified for the master teacher, much literature has been devoted to trying to explain the meaning of excellence in teaching. This search for the ideal teacher has produced long lists of personality characteristics, skills, competencies or classroom behaviours, and has also led to a vast construction of styles, roles or approaches, each trying to show its advantages over the others, or to present itself as contingent on situational factors, like the type of students, the size of the class, the educational level, the nature of the discipline, and so on, in much the same way that was described in the previous section.

In the following sub-sections, the construct of effective teaching will be examined following the same path used when dealing with the creative teaching construct, so that understanding the latter may benefit from a discussion about the former.

The Effective Teacher's Traits, Characteristics, and Behaviours

Looking for examples of effective teacher traits and behaviours, Mackinnon (1978) enumerates "health and vitality", "intellectual competence", "social presence", "good judgement", "identification with the teacher's role", "soundness as a person", "originality", "fairmindedness", "integrity", "and personal courage". Also items that correlated with the Strong Vocational Interest Blank: at p<.01 level, "is an effective leader", and various of items about communication, like "is verbally fluent", "is conversationally facile", "takes the initiative in social relations", "is persuasive", "tends to win other people over to his point of view", "communicates ideas clearly and effectively"; at p<.05 level, "intellectual ability", "good impression"; and negatively, at p<.01 level, "narrow range of interests", "slow", "lacks social presence"; also negatively, at p<.05 level, "lacks confidence", "confused under stress". Grasha (1990) contrasts effective with ineffective teachers using various categories like *words* ("interesting" versus "boring"), *images* ("actor on stage" versus "death"), *feelings* ("excited" versus "frustrated"), *metaphors* ("survival trip" versus "train on a circular track"), and *classroom procedures* ("projects on real problems" versus "lecture"). Sundre (1990), after elaborating a factor structure for pedagogy, found items like "exhibits excellence in teaching", "is committed to teaching", "students find classes interesting", "respects students", "demonstrates concern for the development of others", "is active in teaching", "searches for innovative approaches to teaching", "prepares valuable class materials", "teaches the students the importance of communication", "is generous with time for students", "is respected by students", "demonstrates relevant experiences into teaching", "inspires others to more fully co-operate", "inspires students academically", "integrates teaching with scholarship", "is concerned about educational issues", "works carefully on projects with students", "has long lasting positive impact on students", "is able to activate the students' memory and imagination". This latter list, although in the ideal teacher track, promotes a shift towards the student, putting the emphasis on learning, instead of teaching.

Even though trying to devise what makes an ideal teacher may be an interesting exercise, from the point of view of reflection, the idealist attempt to draw a "perfect" character has little heuristic value, as it is impossible for someone to exhibit all these characteristics, behaviours and attitudes at a high level; it may even contribute to creating a certain frustration for not being able to be like the "ideal", which only a very few people, perhaps those "born to be a teacher", may ever aspire to reach. For the purpose that was described earlier in this chapter - to search for objectivity in the definition of excellence in teaching - trying to define the "good", "effective" or "excellent" teacher does not lead us to a simple, or even possible, task. On the other hand, asking people to rate a teacher on a scale of effectiveness, without defining it further, may provide us with a fairly objective rating, but probably also with as many notions of effectiveness as people rating the teacher, if we ask them about their concept of an effective teacher. Even if researchers could define what is meant by skilled teaching, as Weinstein (1985) says, they could never know how much of it would even be perceived by the teachers.

If we accept proposals like that from Fernald (1995), "the best index of teacher expertise is student learning" (p. 425), there is a shift from the teaching itself to its effects upon the student, the difficulty lying then in defining what is meant by learning, or what type of learning is to be considered meaningful, because, as Gleason (1985) explains, learning is normally equated with exams, taking notes, lecturing and paying attention, but "grades can be acquired without learning" (p. 8). More demanding notions of learning require the individual to extend his or her knowledge by "continually and thoughtfully incorporating new experiences" (Kolodner, 1997, p. 61), so that meaning can be constructed (Entwistle, 1984), and learning to think, which De Bono (1976) considers to be the "deliberate exploration of experience for a purpose", thus including understanding, decision-making, planning, problem-solving, judgement and action.

This shift from teaching to learning tends to put the teacher in a much more demanding position, as if all learning were the responsibility of the teacher. That is not so, especially in higher education, where students are expected to learn much on their own. Care must be taken, then, when judging teaching criteria only by the amount, type or quality of the learning that has taken place in the students, normally assessed by their grades (when exams are run by faculty other than the respective teacher). Even so learning, not teaching, is the end product.

Anyway, at least for what concerns possible definitions and specific characteristics of teaching and learning, expressed in this text, it is not possible to draw any conclusions about differences between creative teaching and effective teaching, because both fall into the "ideal teacher" trap, even though realising that the latter contains the former, and not the opposite.

Opposite Views of Teaching Effectiveness

Because of the little practical use of the notion of the ideal teacher for the purpose of this research, the construction of a style, or approach, where personality traits, skills, or classroom behaviours are arranged in logical procedures (so that training may become possible), is another way to strive for teaching excellence. The educational literature has presented many approaches, in accordance with the movements that have arisen in higher education, from the authoritarian 19th century style of teaching, to which people like John Dewey reacted, followed by other eminent personalities, like Kurt Lewin and Carl Rogers, who have tried to oppose the constant social and political pressure towards conformity and authoritarianism. This kind of struggle between opposing views of directing the education of a society has produced, according to Zeichner and Liston (1996), educational literature that has tended to describe differences in the teachers' practical theories, in terms of bipolar opposites, such as "traditional" versus "progressive", "teacher-centred" versus "learner-centred", "technically focused" versus "reflective teaching", and so on, in that one of the styles is considered bad, and the other good.

Santos (1995), for example, states that teachers must show authority and take the lead in the class, because students want order and norms. Silvester (1996) complains about the emphasis on "progressive", or "discovery learning", rather than formal teaching, about classes being divided into groups, instead of class-teaching; also about the fact that students consistently fail to reach an acceptable level of knowledge; and that teachers must not be afraid of being "didactic". Podlasyi (1991) explains that it takes a professional to understand how difficult it is to add another stroke to a painting that has been created by many generations of no less talented predecessors, calling attention to the fact that we would not choose a "creative" surgeon to operate on us, he poses the problem that "guarantee" and "quality" are different from pedagogical creativity.

On the other hand, authors claim that this is a narrow view of the teacher's role, stressing the need to go beyond the mere teaching of facts and concepts. Murray (1996), for example, claims that "it is not the mere accumulation of facts that makes people educated, it is whether they can ask the right questions and use evidence to answer them" (p. 60); Grasha (1990), although admitting that 40% of the students prefer traditional teaching, advises staff to encourage students to try alternative modes of thinking and go beyond merely common-sense opinions. Also Gleason (1985) calls attention to the fact that excessive preoccupation with the teaching role distorts the teacher's view of learning; that "when the teacher 'teaches' and the student 'learns', each one blames the other for the lack of success" (p. 9). Overholser (1992) stresses that the specific information or skills that students learn are less important than fostering inquisitive minds, and Treffinger, Isaksen and Firestien (1983) see the teacher as the facilitator of student learning, instead of the traditional role of "dispenser of information". Best (1991) shows opposition to the learning of facts and is favourable to the understanding of what gives sense to knowledge. Carl Rogers, cited by Fernald (1995), whose ideas had a strong influence on the learner-centred perspective, exhibits the radical view that "anything that can be taught to another is relatively inconsequential and has little or no significance in behaviour", calling attention to the meaning of the "whole-person learning", where cognition (ideas) and affect (feelings) merge.

As can be seen, both perspectives try to evaluate teaching within a bipolar option, with the best of the defended orientation against the worst of the other. Thus the traditional orientation claims, Cropley (1992) says, that the progressive one is nothing but "erratic purposeless fun (....) to equal lazy, undisciplined, self-centred student behaviour, in a sort of do-what-you-like-teaching(...)" (p. 4), and the latter blames the former under labels like the ones proposed by Lyons (1987) "if it cannot be measured it ain't worth teaching", or "higher education is a matter of certification, not education".

Because of this kind of bipolar view, few authors seem to give credit to both approaches, as effective but different ways of teaching, and when they do, it is in a sort of separation of methods, according to the situation. Trow (1997), for example, tries to make the two main teacher roles (teaching and research) and styles (teacher-centred and student-centred) contingent to the type of students, crossing two possible teaching orientations (subject and student) against another two (transmitting knowledge and creating knowledge), giving rise to four possible styles: the first, named *traditional*, combines subject orientation and transmitting knowledge, suitable when the students' motivation is assumed; the second - *progressive* - connects the transmission of knowledge and the student orientations to be used when the students' motivation is not assumed; the third style is considered adequate for graduate students, because it combines the subject orientation with the creating of knowledge; finally, a fourth style, which, like the previous one, implies research, appears directed to undergraduate students, and so is student directed and oriented to the creation of knowledge.

Methods and styles of teaching are normally directed to the teacher, but there are also many styles of learning, and adult students are expected to learn something on their own, or even from their colleagues. Cooper (1995, p 52), for example, speaks of at least 50 different forms of co-operative learning, ranging from the student-centred to teacher-structured methods. Learning styles suggest teaching needs that vary according to the situation and the individual, as in the examples provided by Grasha (1990), where lectures appear as suitable for students, because they need structure and dependency; independent study opportunities are also advisable; and co-operative needs also suggest that the student be given opportunities to have the attention of others. This author still speaks of thinking styles, listing the *dualist* type student, who prefers to be confronted with just one point of view; the *relativist*, who admits that knowledge is contextual; and the one where *multiplicity* is anchored in personal beliefs. Grasha (1990) also calls attention to the fact that the majority of students are dualist, and so the staff should encourage the students into alternative modes of thinking and avoid personal beliefs, stressing that adult students are more self-directed as learners than teachers give them credit for.

In the end we cannot say that there is such thing as a "bad", or a "good" style, even though we may speak of a certain style more or less suitable to specific circumstances. Moreover it is possible to define not only two styles of teaching, but probably as many as there are teachers, because a style is a personal construction of traits, behaviours, methods, strategies and the like.

We tend to speak of method, or technique, and style as if it were the same thing, and so it is normal to see, for example, the lecture method associated with "traditional" teaching, and other techniques like group discussion, case study or simulations associated with the "progressive" style, giving the idea that the method or technique is appropriate or not in itself, when this is not true: there may be a teacher who uses the lecture method in a splendid way, according to the situation, and another one who uses a sophisticated simulation method with students who do not have enough knowledge to explore it, resulting in poor learning.

It is likely that, when someone criticises a certain style, method or technique, what is probably being criticised is the absence of one, or its lack of improvement over the years. A lecturer that has no teaching style, nor method, and is limited to the role of "dispenser" of information, without any attempt to communicate with the students, may be seen as a poor image of the traditional style, or the lecture-type method; another one who uses very creative activities, but fails to provide any kind of observable learning for the students, may be seen as a good entertainer, but not as an effective teacher, thus giving a poor impression of what may be viewed as the progressive style. Using always the same method, as Harrin (1993) explains, may also be seen as a poor indicator of effectiveness.

Creative teaching and effective teaching are thus difficult to distinguish through the analysis of the style, method, or specific techniques. Nevertheless, uncreative and ineffective ways of teaching may be easier to define simply by realising the absence of a style, method or technique. Creative and effective teaching may, of course, be distinguished from uncreative and ineffective teaching according to the results produced in the learning of the students; that is why this type of evaluation will be discussed later in this chapter.

Creative Teaching as a Self-Attributed Concept

In the end, as Spector (1983) points out, a good teacher is simply one who has continued to grow; one who tries to improve in the job, which, as discussed in the first chapter, is the equivalent to creative behaviour, as seen through the eyes of the individual, in such a specific way that, as Trow (1997) explains, not even originality is important, but only doing the job well and treating the students respectfully. Doing the job well may be represented by thinking through the key ideas in the text or lesson and identifying the alternative ways of presenting them to students (Zeichner & Liston, 1996). Seen as self-perception, creativity is directed towards improvement, or perfection (the goal of life, as explained by Sanford, 1998), and it acquires the meaning of creativity, effectiveness, or excellence according to those who evaluate the action of the individual, namely the students and the faculty.

Again, creativity appears as a hetero-attributed concept, and it may even be possible, as Fryer (1994) concludes, that teachers do not recognize themselves as creative, but only with possessing social attributes and willingness to work hard. Perceptions of creativity, and of effectiveness, are dependent upon the observer, and hetero-attributions of creativity are expected to occur among those who are sensitive to the communicational processes or the innovative products originated by the individual in question. If the student feels that, partially as a result of teaching, he or she has produced something creative, or has developed in that direction, then some of the reasons may be attributed to the teacher.

Besides considering the individual creative, the observers may or may not regard that individual as effective. And so, depending on the observer, it is likely that creative teaching is included in effective teaching, but the opposite may also be the case, where creative teaching is placed outside the effective teaching concept. Barros, Neto and Barros (1992), for example, in a study with 308 teachers, found they put creativity in fifth place, after scientific competence, fine method, authority, and freedom. It may even be possible, as Dawson et al. (1999) observe, that teachers have particular views of creativity, different from traditional ones; they found that teachers value good citizenship characteristics in their students (e.g., "is sincere", "is good natured"), besides the traditional ones (e.g., "is individualistic").

As discussed, and given the difficulty in separating the constructs of effective teaching and creative teaching, a complementary possibility comes up by using each individual's concept of effectiveness and of creativity in teaching, as discussed in the next section.

Teacher Assessment in Higher Education

Apart from the relative ease of evaluating research performance, how can we assess the other roles that define faculty scholarship, which is a complex array of competencies that the teacher must show? Besides teaching and research, each faculty member must carry out a series of other tasks, whose performance contributes to the making up of a reputation, as in any other profession that cannot exist outside an organisational environment. Pacheco (1995), for example, sees only instruction and teaching management (besides research), as faculty occupations, while Sundre (1990) suggests that faculty scholarship is composed of professional activity, artistic endeavour, engagement with what is novel, community service, and pedagogy. So, there exist many tasks other than teaching in which to make a reputation, and as the professional is called a "professor", people may conclude that the reputation of a particular teacher has been made out of the teaching activity when, sometimes, that person does not even teach.

A teacher may build a reputation (meaning the opinion of his or her contemporaries, revised by posterity) through what the faculty perceives as being learned by the students. Even though there is no objective measure for "reputation", it may become a reliable way of teacher evaluation, the problem being that the students' products can also be judged as good or bad depending on the quality of the reproduction made of existing knowledge. As Persson (1996) explains, in relation to the teaching of music, "(...) Institutions of formal artistic training often have a flair for imposing what are believed to be the algorithms of artistic behaviour rather than promoting uniqueness and encouraging individual ways of knowing and learning." (p. 42). A more consistent view of reputation will have to deal with other aspects of student development which, according to Pascarella & Terenzini (1991), encompass achieving competence, managing emotions, developing autonomy, establishing identity, freeing interpersonal relationships, developing purpose, and developing identity or, in Bozik's (1990) simplification, by the grades students get in examinations, and the extent to which the teacher has helped the students to make the best of themselves.

Probably due to this difficulty of seeing a product of teaching, it is hard to find teachers among those who are remembered as eminent by the societies to which they have contributed. Ludwig (1995), for example, in a sample of 1,000 eminent people, found only three cases of recognised eminence in education. Of these three, one - Lucy S. Mitchell - was famous because she was the first woman dean of a faculty, the other had no mentioned reason, and the third - Harry Wolfson - was a professor with more than 60 successful PhD students. Again, the ways through which historical reputation is built are not susceptible to objective recognition, as discussed in the first chapter.

The main "product" of a teacher is the student's learning, and so it is through this "product" that the teacher must be given credit, either by immediate feedback, or after years have passed. As to the immediate feedback, grades seem not to be reliable sources of information, unless they have been attributed by someone else, such as an examination board for a dissertation, with the limitations already mentioned. As to the future success of a student, it is difficult to establish a link between the teaching of a specific lecturer and the successful professional life of the students, as there are many more variables involved, namely their differences before entering the university, as Pasarella & Terenzini (1991) explain. Nevertheless, some attribution may be made, as in the case reported by Persson (1996), where 165 distinguished Polish musicians found that the emotional and informal support of at least one performance teacher, over a very long period of time, was the single most important variable for a later successful musical career.

So, in the end, it is still students' evaluations of teaching that make up the most reliable source of teacher performance, whether it is immediate easy-to-collect classroom feedback, observable work done by the students, or long term evaluation, based on what has been left in the memory of students, and its influence in their lives. But drawing a direct analogy between what the teacher does and what is perceived as effective by the students seems far from an easy task, as Crader & Butler (1996) explain when affirming that no direct effect should be proposed between teachers' behaviours and abilities and student ratings of teaching effectiveness. Nevertheless, this statement is not easily corroborated by research, as discussed in the next section.

Students' Ratings of Teaching

Even if we concentrate exclusively on teaching, and take appropriate measurements of its effectiveness, we know the limitations we will have to face. Trow (1996), for example, calls our attention to the fact that teaching cannot be assessed in a single dimension; also that the quality of the teaching depends on the quality of the learners; and that teaching cannot be assessed without evaluating its long-term effects, not available in immediate student feedback.

Armstrong (1998), describes a study on the discipline of economics, in which the conclusion is that the poorer the student considered the teacher to be, the more economics he learned, even though what was measured was rote learning and not skill development; and Redding (1998), Greenwald & Gillmore (1997) claim that students tend to rate higher a teacher who is lenient in grading. Murray (1997) observes that students are more influenced by the delivery style than by the teacher's knowledge of the materials, and "their ratings are biased according to the professor's gender, students' pending grades in the course and the 'easiness' of the course" (p. 48).

Taking into account every limitation we could find, teaching evaluation would soon become another impossibility, as happened with trying to define effective teaching. But if we look for possibilities, we can find examples like Stumpf and Rindova (1996), advising that teacher evaluation should be made either by *students*, against their perceived learning and enjoyment; by *peers*, against knowledge available and how it is presented to the learners; and by *superiors*, from student feedback, grade distributions, absence of student complaints, and thoroughness of the syllabi. In the end, even understanding their limitations, it is the students who have to play the main role in the evaluation of the teachers, because superiors must rely on the information they provide, and peers may only add information coming from a few class observations that, as Riley (1982) argues, do not constitute consistently reliable information.

Supporting this view, we may find authors like Mackeachie (1990), who affirms that student judgements are stable and agree with those of peers and administrators, even though, sometimes, they may rate more highly an expressive teacher, and claiming that "student ratings are the best validated of all the practical sources of relevant data". Theall & Franklin (1990) corroborate it by stressing that student ratings are multidimensional; reliable and stable; also primarily an influence of the instructor who teaches a course, rather than the course that is taught; and relatively valid against a variety of indicators of effective teaching; and relatively unaffected by potential biases. And Cohen (1990) reinforces it by denying the so called myths of student ratings, in which students appear as not qualified to make judgements about teaching, or just to rate certain dimensions. In the words of Crader & Butler (1996), even possible predictors of differences in students' ratings (e.g. student expected or real grades, preference for subject matter, class rank, time of day, or academic rank of the teacher), reveal themselves weak or inconsistent.

Thus, immediate student feedback is not the best solution, but only a better solution than the others to evaluate teachers' effectiveness. And if we use it we must remember that what we are evaluating is probably not teaching effectiveness as we think of it, but how students see it, and so we must be aware of its peculiarities: for example, the fact that the information provided by students is mostly person-oriented, rather than product-oriented, that is, students value relational aspects as well as the extent to which a particular teacher gave them the opportunity of being themselves, developing their own style and feeling accomplished - which differs very much according to the person who judges. In the research made by Persson (1996), for example, good music students would find it easier to arrive at an understanding of their lecturer's personal characteristics, while students perceived as less talented by the teacher would become more aware of the teaching content rather than the teacher's personality, because they would be more eager to strive for recognition. Comparing students' perceptions, Pasarella & Terenzini (1991) presented the factor "familiarity with the instructor" as an influent variable of between-college effects on students, together with "degree of curricular flexibility", and "faculty formal education"; and characterised teaching effectiveness, seen through the eyes of the students, as the "using of examples and analogies, accessibility outside class, and social-psychological accessibility". Centra & Bonesteel (1990), also argue that students tend to favour personal rapport with the teacher, while faculty prefer "intellectual excitement", as the main dimensions of teaching. If this is true, teachers and students (and students themselves) differ as to what really matters in teaching - which will bring us to the core of the research, later in this text.

Hetero-Perceptions of Creative and Effective Teaching

From the previous considerations we reached the conclusion that creative teaching did not represent a kind of teaching easily identifiable in the present literature, because the use of teaching techniques, directed to the development of the students' thinking abilities, had gone far beyond divergent-thinking techniques; and, as the other teaching techniques were not born out of creative teaching theory, and also contribute to the development of thinking abilities, the frontier between creative and non-creative techniques had become blurred. Not even the only thing that seemed to remain inviolate - the fact that creative teaching is student-centred and aims at maximising the learning potential - can be assured, because it is dependent upon the observer and the way a person values creativity in teaching.

Creative teaching methodology does not even intend to present a completely new perspective, as it tends to search for its meaning in Classical education, which Boone (1987) considers to be directed to invention and discovery; "back to basics", as Craft (1999) concludes.

Getting back to where we started, as in the conception of Spector (1983), creative teaching is probably just to provide opportunities for the learners to improve their creativity, which means, as Briggs (1990) explains, the building of a unique perception of something more, shareable with others. It is then, mainly, remembering Stein's (1994) and Torrance's (1962) conceptions of creative teaching, an emphasis on communication (relationship) between teachers and students, and so it seems quite appropriate as a means to evaluate how these two protagonists differ in their perceptions of teaching and learning.

As to the questions that opened the section on teacher evaluation, it is possible that people perceive creative teaching in a more objective way than they do effective teaching, even though the literature does not provide for more objectivity in the understanding of what creative teaching really is.

Concluding Comments

As when referring to creativity, in the previous chapter, "creative teaching" is seen as lacking construct validity, while the concept used by laypersons carries meaning in everyday speech. As the research addresses the teaching in higher education, this distinction may even become more confusing due to the differing roles of the faculty: teaching and research.

In the literature, creative teaching appears connected to certain traits, characteristics, behaviours and, especially, to techniques, methods and classroom arrangements, whose variety and complexity tend to make the term lose its heuristic value as a theoretical construct. Creative teaching tends to be confused with effective teaching, in the task aspects, where descriptions of teacher and classroom characteristics appear as similar, when pursuing the "ideal teacher" image.

Another way the literature characterises creative teaching is by opposing it to certain styles or methods, like "traditional", or "teacher-centred", comparing the best of the former with the worst of the latter, introducing judgements about different conceptions of teaching; it thus gives rise to a never-ending discussion between proponents and detractors about the effectiveness of each type of teaching. In this way, the literature contributes more to defining what creative teaching is not, rather than what it is, with the "ideal teacher" trap always present, just as in the teacher training courses, also discussed in this chapter, and the way they try to influence the role construction and role improvement of higher education teachers.

Creative behaviour in teaching, as seen through the eyes of the player, seems to be just trying to improve one's job, in such a specific way that not even originality is important, but only by thinking through the key ideas and identifying the alternative ways of presenting them to students. Seen as self-perception by teachers, creativity is directed towards task improvement, keeping the student as the main reference; it acquires the meaning of creativity, effectiveness, or excellence, according to those who evaluate the action of the individual, namely the students and faculty.

Seen as a hetero-attributed phenomenon, creative teaching is probably just a more demanding criterion for evaluating teaching abilities; the student tends to favour relationship factors, while faculty's perceptions tend to rely more on task factors, more connected with effectiveness, or to innovation in research. That is what this research will try to clarify.

CHAPTER THREE

PERCEPTION AND CONSTRUCTION OF THE ROLE OF TEACHER

One may wonder how it is possible that, by some strange mechanism, the memory that we have of our expectations as students about our teachers, becomes suddenly blurred when we change role and become teachers instead: we find ourselves almost unable to remember our previous thoughts and to act in accordance with our expectations when students. If we make judgements of our teachers, as students, concerning the way we would like them to act, why is it that we are not able to reason, as teachers, according to those judgements? How is it possible that we make the same mistakes we used to criticise in our teachers, and do not even notice it? Can it be that a simple change in the role we play in society modifies so much our perception of people and events? How can teachers "stay close" to the students? Is it possible to balance effectively the requirements of students with those of peers and superiors, in today's university?

To provide a theoretical framework for the investigation of possible answers to these questions is the purpose of this chapter.

Having first discussed the constructs of creativity and creative teaching, it seems important to understand the particularities in the construction of the teacher's role, in such a way that it may be seen as effective by those who evaluate it, whether teachers or students. This understanding might be achieved through an initial approach to symbolic interactionism and role theory, as a means to understand the social relationship between different roles (e.g.

teacher and student); then concentrating on the personal construct theory, in order to build a more precise reciprocal causal model, and to make the research design and instrument of this investigation.

Next, leadership theory and research will be used as an analogy to the teaching situation. Due to the similarities between the roles of teachers and of leaders, evidenced by various authors (Simonton, 1984; Treffinger, 1986; MacKinnon, 1978; Fryer, 1994), and because of the advanced stage that leadership theory has reached in the explanation of the construction of the roles involved (leader and follower), a direct analogy will be drawn between both situations (teaching and leadership). This analogy will provide evidence to support the approaches described in the preceding chapter, when dealing with ways to define effective teaching and creative teaching (e.g. teacher traits, behaviours or styles); it will also provide the theoretical ground to explain how someone may be recognised as an effective or as a creative leader by followers. Leadership information processing theory, together with other cognitive theories, based on role theory, will be presented as a means to draw a parallel with the way a teacher's role may be constructed and perceived.

In order to keep clear the analogy between leadership theory and the teaching situations, links between them will be established throughout the text and at the end of every section.

Symbolic Interaction Theory and Role Theory

Spelling out what it is in society that impacts particular aspects of the person, as well as what it is in the person that makes a difference to particular aspects of society, and just how these mutually determinating processes take place, requires a theoretical framework to facilitate movement from the level of social structure to the level of the person and vice-versa; it also requires explanatory principles articulating the two levels that reflect the inherent complexity of both. This is the purpose of symbolic interaction theory and role theory.

As Stryker and Statham (1985) describe, role theory was developed through Social Anthropology and German Sociology, while social interaction theory appeared as the study of the behaviour of people playing out roles shaped through evolutionary adaptation. Both theories depend on the concept of "role", which articulates social structure as conceptualised around the way an individual becomes incorporated into organised patterns of interaction, conducted in terms of meanings persons develop in the course of their conduct - "symbols". In fact, people learn to hold expectations of themselves and others according to the positions they occupy in the social structure, and as social systems tend to equilibrium and harmony between the parts, the individual is led to conform to collective habits, and to act according to other people's expectations, which one becomes aware of through the process of communication. If a person wants to be accepted within a certain group, that person needs to learn to be "sympathetic" to the group, which means to learn to anticipate the possible reactions of others to one's own behaviour.

The individual develops specific ways to respond to other people's expectations, creating his own "self" between the control made by the attitudes of others and his spontaneous behaviours, by means of putting himself in the place of the other, and responding as the other would do - *role-taking* - and by anticipating the consequences of his own behaviour - *role-making*. As Munné (1989) explains, through the former the individual anticipates the other's behaviour, which allows that individual to respond as the other would do; as to the latter it corresponds to the role which is really performed, and not to what the individual is expected to perform - *prescribed role*.

Roles are social in the specific sense that it is not possible to talk sensibly about a *position* (any recognised category of people) without at least implicit references to other positions. As in the words of Stryker & Statham (1985), "to use the term 'role' it is necessary to refer to interaction: there can be no 'teacher' without 'pupils', no 'rebel' without an 'establishment'. Any position assumes a counterposition; any role assumes a counter-role." (p. 323). Through thinking, the person imagines being another, and tries to devise what kind of behaviours appear as most suitable, in a sort of anticipatory socialisation; this may bring conflict between the self-concept and the expectations of others, if the fit is not satisfactory. In the case of a teacher, for example, who fails to have his or her own role validated by the students, this will make it difficult for the person to maintain a sense of self that depends on that role; the response may be either to try to change, keeping the students as the "significant other", or to create another self to respond to expectations of another target population, like peers or superiors.

According to Gabarro(1987), the construction of one's own role may develop through several processes, like socialisation, role conflict, structure of role relationships and role transitions, all of which may take place in a "bargaining" between people. The more people have their preferences and needs met in role relationships, the more satisfied they are in those relationships; and the more others share that person's values, orientations and preferences, the more readily role arrangements can be devised that meet the needs of those involved.

If role partners can agree on preferred role arrangements, their satisfaction is likely to be high; this consensus is not automatic but achieved, and aspects like organisational distance and authority reduce the probability of role bargaining between people situated at different levels of the hierarchy. This process of bargaining is highly emotional, because it involves the person's imagination of others' feelings, when putting oneself in the place of the other, and taking that person's perspective. Then, feelings like embarrassment, shame, or guilt, enter social control processes and produce the "socialisation of affect", that is, the organisation of emotional expressions according to the person and the situation, in order to maintain established feelings.

The interesting view of Maslow (1968) contemplates a self-development transcending role definitions and allowing for self-actualisation, as a fundamental of human existence: the human capacity for autonomy from social circumstance. Self-control is an outgrowth of social control, and dependence on multiple others makes possible independence from the expectations of any given other(s), freeing the person to an important degree and making the choice possible. Even in a situation of maximal coercion, persons creatively seek and find means to assert their individuality, and so creativity and individuality may be seen as the product of the same social processes that produce constraint and conformity, as the search for individuality may lead the person to break with specific rights and duties, and thus, as Hinde (1997) explains, to become subjected to social sanctions.

To Petkus (1966), the construction of a creative role identity leads the individual to act in the way others will regard him or her as creative; a *role-performance* identity of "creative teacher", for example, would imply such behaviours as using non-traditional texts, employing innovative class projects, etc. There is an inexorable synergy between role support from others and self role support, when both are significantly present; however, the individual may reject immediate role support if he or she is convinced that future generations, or other kind of audiences, will provide such support. Therefore, the support may either be real or imagined, but it needs to exist in order to feed the creative role.

Again, according to Stryker & Statham (1985), structural role theorists assume that institutionalised role expectations (e.g. mother and child, employer and employee, teacher and student) are the major constraint on a person's behaviours and the internalisation of those role expectations proceeds almost automatically in the course of the socialisation process. Harrin (1993), for example, stresses the fact that the teachers' initial professional development is strongly influenced by images of previous teachers, which lead to immature and inflexible patterns of behaviour.

Having explained the general framework in which the construction of the role may take place, it is possible to develop a better understanding of the teaching situation, especially when dealing with the extra effort that a teacher has to make in the attempt to draw his or her role out of an ever changing student population, instead of doing it from other teachers, only, or just from a school's conception of the student's prototype. A teacher may consider other teachers as the "significant other", and "take their role" accordingly, or place the students in that position; if so, the effort of imagination that has to be made is much stronger, in this latter case, due both to role distance and to the diversity and changing character of the student population. As the bargaining that has to be done between teacher and student, so that teaching actions become validated, is highly emotional, it is possible that what happens during role making lies far beyond consciousness and rationality, and mainly in the will and effort to maintain a constant update of the perception of the other's reactions to one's actions, so that role support may be achieved. But will the role making of a teacher, keeping the students as the "significant other", be made while rejecting other teachers as role models? Or can a person build one's role having both as references? These are interesting questions that will be discussed, and I hope answered, during the remaining investigation.

Having made the necessary links with the teaching situation, the next section will deal with a more precise model, which may lead to the use of role theory in the making of a research design and instrument, for field investigation purposes.

Personal Construct Theory

The personal construct theory was originated by George Kelly, with his work entitled *The Psychology of Personal Constructs* (1955), which gave primary emphasis to the active exploratory propensities of the individual. In accepting that the universe contains real events and objects, Kelly also assumed that events internal to a person were equally real, so that thoughts or ideas about external things have a reality which may be as convincing as the things themselves, and people are distinguished by their capacity to represent the environment in different ways. People differ from each other in their construction of events, and in the relationships they establish between constructs and, as Gammack & Stephens (1994) state, they try to improve these constructs to increase their repertory by altering them to provide better fits within larger systems. As summarised by Stewart, Stewart & Fonda (1981), Kelly's personal construct theory fundamental principles are that (1) perceptions influence expectations and vice-versa; (2) the construct system is the mediator between the individual and reality; and (3) the construct system is unique to the individual and develops throughout life.

Kelly's fundamental postulate, as presented by Collett (1979), proposes that "a person's processes are psychologically channelled by the ways in which he anticipates events". Assuming that people are, by definition, active and motivated in some way, Kelly considers that man seeks prediction, and that his motion is controlled by the ways in which events are anticipated, as defined by personal *constructs*, that is to say, the way in which some things are interpreted as being alike and at the same time different from other things (e.g. black vs. not black; not white; white). Also, Bannister & Mair (1968), write that "each of us finds meaning in his life not only by identifying things for what they are, but also by noting what they are not" (p. 45).

Similarity and contrast are then inherent features in any construct, and all constructs are necessarily bi-polar in that, for example, a person cannot be seen as intelligent without this implying some construed similarity between this person and others who show similar characteristics and some contrast with characteristics shown by stupid people. Viaplana & Alvarez (1992) consider this bipolar nature of the personal construct like the contrast between the scientific hypothesis and the null hypothesis.

Care must be taken not to take a construct with the same meaning of "concept", as the latter, although grouping certain things, separates them from everything else (e.g. black vs. white), not only from some other things, as is the case with the former.

A construct may be *superordinate*, if it includes other constructs as elements, called *subordinates*; it may also be a *core* construct, when governing a person's identity, or *peripheral*, if not. As Stewart, Stewart & Fonda (1981) mention, a person's constructs develop through life, and if a subordinate construct may change relatively rapidly, the change of superordinate constructs is slow. In a study of trainee teachers, made by Bannister & Mair (1968), it was found that initially they came with a fair amount of constructs (ideals), that were reduced during the training (reduced ideals), and came back again afterwards, as re-elaborated images of reality.

The concept of role is central to this theory, and one of its corollaries postulates that "(...)to the extent that one person construes the construction processes of another, he may play a role in a social process involving the other person." (Bannister & Mair, 1968, p. 25). A person, then, plays a role in relation to another when he or she makes an interpretation about what the other thinks about him or her or about the problem in hand.

People may use a number of apparently incompatible constructions to behave in diverse ways, and still seeing themselves as acting consistently within the context of some superordinate construct. On the other way, people are not always aware of their inconsistencies, and two people with different experiences may come to have the same constructs, that is, the same construction of experience.

According to Hinde (1997), different people construct different "theories" (implicit theories or "common-sense" theories) with which they organise their experience and with whose aid they control their own behaviours, either by using the constructs to make the theories, or by adjusting the incoming constructs to the theories already established. In this way, people are continuously in search of meaning by trying to make sense of their own and others' actions.

This description of the main features of personal construct theory has been presented as a background to explain the construction of the research instrument, using Kelly's grid procedures, which will be addressed later in this dissertation. Meanwhile, Kelly's theory may be used as a complement to understand the role construction of a teacher, mainly by stressing that all perceptions of experience are based on the way the person anticipates events. Again, as in the case of role theory, when referring to the anticipation of others' reactions (role-taking), it is that anticipation that leads the teacher to try to understand the constructs of the students, and to speak in the "student's language", so that communication may take place between the two.

While maintaining the core construct stable, the effort to stay close to the student leads the teacher to change his or her peripheral constructs, and to adapt them to the population at hand. Due to this changing nature of the student population, it is possible that a teacher who makes a self-actualising effort shows some doubts on how to behave, and may be seen sometimes as inconsistent with the expected behavioural framework. But that happens because the teacher may use apparently incompatible constructs and behave in diverse ways, but only at the subordinate construct level, not at core construct level, which remains stable. A teacher who tries to stay close to the students may have some doubts about how to do it, but not that it must be done; and probably fewer doubts about what must not be done - it is by elaborating personal constructs that the person gives meaning to actions and interprets other people's reactions as positive or negative, according to their similarity or contrast to what the person thinks.

Having explained the main features of role theory and Kelly's personal construct theory, which form the basis for the development of the design and of the main instrument of this investigation, let us proceed to explaining the essential aspects of leadership theory. Due to the advances made in leadership theory and research, the use of relevant theoretical models will be presented in every situation that an analogy can be drawn, in order to understand both the constructs of effectiveness and creativity in teaching, as well as how role theory may be used to build a research model.

Leadership Theory and Research

As Mackinnon (1978) states, teacher-student interaction may be seen as a particular context situation of a leader-follower interaction, and so we may "borrow" some leadership theories to try to explain the process of recognition of competence, or creativity, in the case of teachers. Also, as Simonton (1984) argues, creativity and leadership are both social influence processes, as well as communication processes: all leaders need to be creative, and so creativity is something that is part of leadership. Still, Fryer (1994) writes that "(...) it may be argued that research on views about creativity and preferred teaching styles can be extrapolated legitimately to the field of management (p. 260)."

Managerial leadership, political leadership, military leadership, are all examples of fields of interest that have always promoted intense curiosity and discussion, which has led to an enormous production of research findings and theoretical conceptualisations. Due to the need to produce visible effects like, for example, in the selection and training of managers in business, leadership theory and research has demonstrated a tendency to be result-oriented, rather than theory-oriented, which may bring some advantages as far as teacher training and educational theories are concerned.

Together with the similarities between low-level leadership situations and classroom situations - leading and teaching - leadership theory and research may provide the teaching situation with research models, theory and findings which are not easily found in educational science theory.

That is why the next subsection is devoted to the presentation of major leadership theories, inside the structural paradigm (the "one best way" of leadership effectiveness), from which analogies will be draw as to the organisation and conceptual limitations of trait and behavioural descriptions of teaching. The following subsection (interpersonal and intragroup leadership processes) will deal with role-theory-based leadership theories that may be seen as conforming to the teaching situation, and that may contribute to the understanding of the phenomena involved.

Later in the text, the construct of creative leadership will be presented and discussed.

Overview of Major Structural Leadership Theories

According to Jesuino (1987), leadership theories can be divided in two orientations: *structuralism*, reflecting the linear progression of leadership research during this century, in its attempt to find a "one best way" to lead; and *genetic*, grounded mainly on social-cognitive psychology and the symbolism associated with leadership, devoted to the processes of leadership, rather than to explaining individual leader effectiveness. The former orientation can be divided into four quadrants, combining two possibilities of focal constructs (traits and behaviours), with two theoretical perspectives (universal and contingent); the latter concentrates on various models of inter-individual, intergroup and intragroup processes of leadership.

In a recent and thorough contribution, House & Aditya (1997) criticise the large majority of leadership studies as being too oriented to analysing the relationships between leaders and followers, ignoring important aspects like organisational culture, and the relationships between leaders, peers and superiors; also as being too directed to USA culture, where individualism, follower responsibilities and hedonism are stressed over other orientations. These authors also establish a taxonomy of leadership theory and research based mainly on trait, behaviour and contingent approaches, and other theoretical approaches that will be reviewed in the following paragraphs, in a way that may be profitable to the understanding of the teaching situation.

Trait Approach

As in the research on creativity, the study of the great leaders prevailed till the fifties, according to the universal conception of the "ideal leader", who can lead everyone in any situation, due to the possession of unique personality characteristics that separate leaders from non-leaders, or effective from ineffective leaders. Vroom & Yetton (1973), for example, enumerate traits like intelligence, extroversion, adjustment, dominance, independence, and self-confidence. Although the original trait approach is now abandoned, as Bass (1990) recalls, the premise that certain leader traits increase the likelihood that a leader will be effective, but do not guarantee effectiveness, is generally accepted, as is the fact that the relative importance of different traits is dependent upon the nature of the leadership situation. McClelland's achievement motivation theory (McClelland, 1985), House's theory of charismatic leadership (House, 1977), and transformational leadership approaches (Burns, 1978; Conger & Kanungo, 1987; Bass, 1996) are recent examples of derivations from the original trait approaches.

As discussed during the enumeration of teachers' characteristics, while pursuing the "ideal teacher" concept, leadership trait theories may help us to understand the limitations and use of this kind of descriptions to explain the teaching situation, and to the need for separating trait approaches from other kind of approaches. As with leadership, and even though the construct of the "ideal teacher" suffers from lack of validity, it is possible that certain teacher traits increase the likelihood that a teacher will be effective, but do not guarantee effectiveness, as well as the fact that the relative importance of different traits is dependent upon the nature of the teaching situation.

Behaviour Approach

Together with the rise of behaviourism, and the fall of the "ideal leader" trait approach, the sixties and seventies represented decades of intense research under the behavioural approach. This orientation, while under the universal view, aimed at identifying the leadership *styles* of those who have power - the formal leaders - trying to separate effective from ineffective leadership behaviours. Kurt Lewin (White & Lippit, 1967) provided an initial separation of styles, which he called *autocratic, democratic* and *laissez-faire*, and influenced other research that would provide results that stood for a long time. This research was done by two universities with similar orientations, which provided the so called Michigan studies and the Ohio studies.

The Ohio studies, pursuing the "effective leader" orientation (universal perspective), were based on series of factor analysis of lists of behaviours, obtained through questionnaires. The *Leader Behaviour Description Questionnaire* (LBDQ) was used to identify two orthogonal dimensions, called *consideration* and *initiating structure*, the former meaning leader behaviours indicating friendship, mutual trust, respect, wellbeing, concern for subordinates, and equal treatment; the latter corresponding to behaviours aimed at objective attainment, performance and activity organisation. On the consideration side, the questionnaire included items like "decides without consulting the group", "is open to change", "worries about the wellbeing of the group members"; on the initiating structure side, examples of items were "assigns specific tasks to group members", "defines performance standards", "enforces rules and procedures", lets the group members know what is expected from them".

Even though these orientations were first presented as independent, later research, reported by Jesuino (1987), revealed mutual correlation with respect to factors like satisfaction and group productivity, as well as a positive relationship between *consideration* and *satisfaction*, and *initiating structure* and *effectiveness*.

The Michigan studies provided similar findings, but with a different behavioural designation: *relationship-oriented, task-oriented,* and *participative leadership*. The first two are similar to the earlier designations, while participative leadership behaviours designate the leader actions directed at group supervision instead of individual supervision, promoting co-operation, group problem solving and decision participation among group members.

In the teaching situation, perhaps similar findings may be observed, if we try to separate task and relationship teaching behaviours, and see that they are both correlated, and that there exists a positive relationship between consideration (relationship-orientation) and satisfaction of the students, and of initiating structure (task-orientation) and teachers' effectiveness.

Moreover, measurement instruments like the LBDQ may be used in the teaching situation, to see if the task-relationship distinction still holds, as it does in the leadership situation, as well as to establish links between leadership and teaching creative behaviours.

Contingent Approach

The contingent approach tries to match leadership styles with situational variables, admitting that the leader's effectiveness is not universal, but dependent upon a series of factors beyond the leader, like the task, the group and the situation. Fiedler (1967) is the main author within this orientation, connecting the contingent approach with the leader's personality characteristics, under three main headings: a) leaders have certain traits which orient them either to the task or the relationship; b) trait orientation can be measured through LPC (*Least Preferred Co-Worker*) scale; c) the leader's effectiveness is dependent upon the fit between his or her personality orientation and the situation *favourability* (the amount of control that the leader has over the subordinates). To Fiedler the situation included three elements - leader-member relationships, degree of task structure and formal power - and, according to his theory, low LPC leaders would tend to be task motivated and their dominant orientation would correspond to *initiating structure* of the Ohio model, and so they tend to be more effective in stressful conditions; high LPC leaders would be human relations motivated, and they would tend to be more effective in moderate or low stressful conditions.

Articulating behaviours with the situation, five important models appear: Vroom & Yetton's (1973) normative decision model, Yukl's (1989) multiple linkage model, House's path-goal theory of leader effectiveness (House, 1977), Hersey & Blanchard's situational leadership theory, or life cycle theory (Hersey & Blanchard, 1977), and the cognitive resource theory (Fiedler& Garcia, 1987). From these, the teaching situation may be considered closer to Hersey & Blanchard's (1977) model, which attempts to articulate the leader's behaviour with a situational variable that they call the subordinates' maturity. According to these authors, an effective leader must not only apply different leadership styles to different people, but also different styles to the same person, depending on his or her degree of maturity in the task at hand. The appropriate behaviours are similar to those of the Ohio model - LBDQ questionnaire (Appendix J) and evolve within a sort of bell-shaped curve inside two orthogonal axes. The horizontal axis defines both the maturity of the subordinates, and the leader's degree of task orientation, starting with high maturity-low task behaviour, and the vertical axis indicating the leader's human relationships orientation, starting with low relationship orientation. This configuration gives rise to four quadrants, characterising leadership behaviours: S1 - telling (low maturity, high task, low relation); S2 - selling (medium low maturity, medium high task, high relation); S3 - participating (medium high maturity, medium low task, high relation); S4 - delegating (high maturity, low task, low relation).

Leadership contingency theories provide some insight into the teaching situation, either by drawing attention to the fact that the teacher's behaviour or personality may interact with the class, producing different results, according to the situation, as well as by the need to break with the "ideal teacher" concept and its listings of ideal traits, behaviours or characteristics.

Another important aspect brought by these kind of theories is the need to learn to detect differences between students, and between situations, and to act accordingly, instead of worrying about teacher traits, behaviours, or styles.

Leadership Effectiveness

Like definitions of leadership, conceptions of leader effectiveness differ from writer to writer, and one major distinction between definitions of leadership effectiveness is the type of consequence or outcome selected as the effectiveness criterion. As Yukl (1989) enumerates, the outcomes include such diverse things as group performance, attainment of group goals, group survival, group growth, group preparedness, group capacity to deal with crises, subordinate satisfaction with the leader, subordinate commitment to group goals, the psychological well-being and development of group members, and the leader's retention of status in the group. In spite of this vast list, the measures normally used to evaluate leadership effectiveness can be reduced to three: a) task performance, b) group cohesiveness, and c) subordinates' satisfaction.

According to Bass (1990), the most commonly used measure of leader effectiveness is the extent to which the group or organisation performs its task successfully and attains its goals. In some cases, objective measures of performance or goal attainment are available, such as profit growth, sales increase, productivity, and so on; on other cases, subjective ratings are obtained from the leader's superiors, peers or subordinates. The leader's contribution to the quality of group processes, as perceived by followers or outside observers, is another way to measure the leader's effectiveness: has group cohesiveness increased due to the leader's action? Has the same happened to factors like member co-operation and motivation, problem solving, conflict resolution?

The third measure of a leader's effectiveness is the attitude of followers towards the leader, and so the questions are: do followers like, respect, admire the leader? How does the leader satisfy their needs? What have been the values of indicators like turnover, absenteeism, complaints, sabotage, etc.?

The selection of appropriate criteria of leader effectiveness depends on the objectives and values of the person making the evaluation: e.g. a leader's superior is likely to prefer productivity instead of member satisfaction. That is why the different criteria are often uncorrelated, or even negatively correlated if, for example, short term objectives are placed ahead of long term achievements, and a more comprehensive measure of leadership effectiveness is obtained over an extended period of time. That is why multiple conceptions of leadership serve to broaden our understanding of the phenomena involved, and to enlarge the scope of our inquiry. Nevertheless, leadership theory does not provide us with a clear distiction between leader and follower perceptions of leadership effectiveness, if different, even though one may assume that the leader and the organisation are more concerned with task aspects of leadership, while the followers tend to give more attention to relational aspects, as Gordon (1977) reports.

Tracing the parallel with the teaching situation, it is possible to conclude that the concept of teaching effectiveness may also be seen as dependent upon the observer and the circumstances, so that the enumeration of its requisites serves only to evaluate the phenomena involved, not to arrive at a concise definition of what effective teaching really is. Nevertheless, the fact that leadership effectiveness is seen as related to three broad domains - mission accomplishment, follower satisfaction, and group cohesion - may also serve as an analogy to the teaching situation, by raising the question of considering aspects related to task effectiveness and to relationship effectiveness.

Creative Leadership

As previously mentioned, charismatic and transformational leadership have appeared as recent adaptations of former leadership trait theories to the present situation, where innovation and change have become the most important characteristics of the business environment. Burns' (1978) initial conception of transformational leadership was based on judges' agreement that certain leaders attracted strong feelings of identity among the followers and intense feelings about the leader (charisma), sent clear messages of purpose and mission, and generated excitement at work and heightened expectations through images and meanings (inspirational leadership), cultivated intense one-to-one relationships and empathy for individuals (individualised consideration), and were interested more in ideas than in processes (intellectual stimulation). Burns considered that transformational leadership was one pole on a line, opposed to the *transactional leadership* pole. This latter kind of leadership was said to occur when the leader rewarded or disciplined the follower depending on the adequacy of the follower's performance, and so on contingent reinforcement, either positive contingent reward or the more negative, active or passive, forms of management-by-exception (correcting errors, deviance or mistakes when they occur). The transformational leaders were also considered (Bass, 1985) similar to teachers, as they may change the beliefs and values of some of their students.

These factors were later developed by Bass (1985) in an extensive research using the Multifactor Leadership Questionnaire (MQL), together with other research methodologies. The MQL groups 80 behavioural statements, divided into eight factors: *charisma, inspirational motivation, intellectual stimulation, individualised consideration, contingent reinforcement, active management-by-exception, passive management-by-exception,* and *laissez-faire*. The MQL has been criticised about its ability to measure the "new" leadership qualities (Lievens, Geit & Coetsier, 1997), as well as for the fact that ratings given to transactional-type leaders, in studies reported by Bass (1985), described these as being higher in consideration for the personal needs and feelings of subordinates, and in performance feedback (the extent the supervisor evaluates employees' work and keeps them informed of how well they are doing).

The idea of something more than just leading someone to do something, expressed in the previous approach, has been a constant in recent contributions, directed to vision, change and innovation (Morrison, 1992; Taffinder, 1995), which are also supported by authors who use the designation *of creative leadership*. Groholt (1992), for example, connects the term with the need that the leader has to preview the future "leaders and followers who intend real changes that reflects their mutual purposes" (p. 81).

Besides the connection of the concept with innovation, change and vision of the future, authors take great care in presenting the leader as a *facilitator*, that is, someone who promotes things through individuals and groups, contrary to the heroic type who that shows everyone the way. De Conde (1993), for example, insists that the creative leader must be rather than do, must lead through teams, learn with the others. Isaksen (1992) enumerates aspects of the facilitative model of leadership, like "involved in setting climate", "relies on desires of members as motivational force", "is a resource to be utilised by group members", "moves towards becoming a member", "remains alert to expressions and feelings", giving a clear orientation to human relations of this type of leadership. Guastello (1995) calls attention to the need for a third leadership dimension - development orientation - besides task and relationship orientations, which refers to leadership actions that enhance the capabilities of group members to do more creative or otherwise better work. Seeing the leader as a "facilitator", who develops and presents opportunities for participants to enhance their own creativity, this author also reported a study in which the results showed that, in a group problem-solving task requiring creativity and imagination, the people who emerged as leaders were not only those who offered innovative ideas, but also people who could facilitate the creativity of other people.

Creative leadership may then be viewed as a process intended to create the conditions for the emergence of member creativity, rather than to produce innovations, as described by Knowles (1990), when defining its meaning as "that form of leadership which releases the creative energy of the people being led". A creative leader would not be necessarily an innovator, but someone who helps in providing conditions for the group members to innovate.

Drawing an analogy with the teaching situation, a creative teacher would then be someone who provides conditions for the students to be creative, while an innovative one would be seen as producing innovations. Nevertheless, leadership theory does not provide further understanding about processes and role construction related to creativity.

Overview of Major Genetic Leadership Theories

On the genetic pole, mentioned by Jesuino (1987), other kinds of theories may be found, grounded mainly on social-cognitive psychology and the symbolism associated with leadership, devoted to the processes of leadership, rather than to explaining individual leader effectiveness. Operant conditioning theory, in which leadership is seen as a leader's behaviour that *makes a difference* to others' behaviours; Bales' dual leadership theory, stressing that role differentiation in groups takes place in various dimensions; Hollander's 'idiosyncrasy credits' theory, stating that the leader is given "credits" by the group according to his or her degree of conformity to the group norms.

Even though the presentation of the listed models could bring important points to the discussion, it is inside the cognitive, social-perceptual models, linked to symbolic interactionism and role theory, that we can find more similarities with the present research, because leader recognition and teacher recognition may perhaps be explained using similar social-perceptual processes and categorisations.

Leader-member exchange theory (LMX) is of special interest to this research, as it deals with the development and effects of separate dyadic relationships between superiors and subordinates, and not with leadership traits or behaviours. In fact, proponents of the theory argue that the quality of mature superior-subordinate dyadic relationships would be more predictive of positive organisational outcomes than traits or behaviour of superiors, and that there has been less attention devoted to specific leader behaviours that foster high-quality relationships. In this regard, the leader behaviours implied are those conceived as person-oriented and not those connected with close supervision.

Since, as House & Aditya (1977) admit, LMX theory is still at the beginning of its development, particular attention may be devoted to its precursor - the vertical dyadic linkage theory - which will be done later in this chapter.

Implicit leadership theory (Lord & Maher, 1991), is another recent contribution to the understanding of the phenomena involved, which addresses the evaluations people make about leaders, and the cognitive processes underlying these evaluations and perceptions of leadership. Instead of the common behavioural approaches, this perspective states that all specified leader behaviours would still not make an individual a leader unless that person is also perceived as a leader. Again, according to House & Aditya (1977), implicit leadership theory can be extended to the cross-cultural rather than to the dyadic context only, and it is especially suitable for understanding what is expected of leaders, and the influence granted to them in a culture, as this theory may indicate the extent to which individuals in positions of leadership are expected to be change-oriented, risk-oriented, visionary, directive, and proactive, or instead, reactive, non-directive, risk-aversive, and maintainers of the status quo.

Bales's SYMLOG will be presented as a research-grounded set of theoretical and methodological elements that were successfully combined in articulating participant-observation with measurement and theory. The resulting instrument, and the measurements collected in the teaching situation, may be very helpful to this research in providing insights about how people see creative teaching.

In every one of the listed theories, perceptions of leadership constitute the anchor aspect.

Perceptions of Leadership

Lord & Maher (1991) argue that leadership results from a social-perceptual process of being seen as a leader by others, either because they recognise some particular characteristic of the leader, as a person, or they infer it from events in which that person participates. Lord (1985) developed a social information processing model in which he asserted that leadership perceptions can be explained by two qualitatively different processes: either leadership can be *recognised* from the qualities and behaviours revealed through normal, day-to-day interaction with others, or it can be *inferred* from the outcomes of salient events. For example, someone who is intelligent, honest, outgoing, understanding, and verbally skilled is likely to be recognised as having strong leadership qualities. Alternatively, leadership is likely to be inferred when a person such as a CEO is seen as being directly responsible for a favourable outcome, such as increased profits.

Leadership perceptions can be formed when people's attention and motivation are focused on task activities, suggesting that these perceptions involve what cognitive psychologists call *automatic processes* - processes that occur without awareness, intent or effort, and without interference with other cognitive tasks. Our ability to think about or discuss leadership also involves *controlled processes* - processes that require awareness, intent or effort, and that interfere with other activities. Lord & Maher (1991), trying to explain how both inferential and recognition-based processes can be either controlled or automatic, developed a two-by-two classification of leadership perception processes, as shown in Table 1, and that will be presented in the following text.

Table 1. Alternative types of processes used to form leadership perceptions

		Mode of cognitive processes	
Modes of perceptual processes	Data	Automatic	Controlled
Recognition	Traits and behaviours	Prototype matching based on face-to-face contact	Prototype matching based on socially communicated information
Inferential	Events and cutcomes	Perceptually guided, simplified causal analysis	Logically based, comprehensive causal analysis

Recognition processes.

Recognition-based perceptual processes help us form leadership perceptions from the normal flow of interpersonal activities, and because social interactions often place high processing demands on actors, it makes sense to think of these processes as proceeding more automatically. Automatic processes compete less with ongoing interactions than controlled processes do, and recognition-based processes also depend on exposure to the behaviours of others and on knowledge of their underlying traits. Thus, these processes involve the use of pre-existing knowledge about leadership in a particular context, which has been referred to by Bass (1990) as *leadership implicit theories*, in much the same way as has been done earlier in this text. And so, through normal day-to-day experiences, as well as through living in a specific organisational context, people develop pertinent mental structures to help them simplify the processes required to recognised leadership in others. To this respect Lord & Maher (1991) have shown evidence about the fact that experts and novices differ substantially in the amount and structure of underlying knowledge about leadership, as well as qualitative differences in leadership perception processes.

Through elaboration of categories the individual reduces the complexity of the surrounding world, permitting symbolic representations of it in terms of labels given to categories, and providing a system of shared names, by which people can communicate information about categorised entities. Lord et al. (1984) argued that leadership categories are hierarchically organised, from the highest, more abstract level of superordinate categories, to the basic-level categories that incorporate situational or contextual information.

As Lord & Maher (1991) explain, leaders are differentiated into specific types (e.g. military, political, business, education), and basic-level categories may simply consist of traits and behaviours appropriate to a leadership role in a particular context, which may differ according to the hierarchical position that the leader occupies in the structure. For example, in a business context, someone who is seen as well dressed, honest, outgoing, intelligent and industrious would be named as a leader. Thus, a simple act of categorisation may provide a powerful cognitive structure that shapes the nature of interactions among people, and the information contained in such categories may also provide a self-standard that indicates to the leaders themselves how they should behave.

Prior to the development of a category *prototype* (which Sims & Lorenzi, 1992, define as a vivid representation of a category), categories are often defined on the basis of exemplars - concrete examples of category members (e.g. assessing military leadership attributes by the knowledge of one salient military leader). As experience progresses, so the categories in which people perceive potential leaders widen up, within a movement from person-based categories, to category-based processes of recognition. Sims & Lorenzi (1992) also present a study where prototypes of good and bad managers were defined, using contrasting behaviours and adjectives like "motivates others" vs. "poor communicator", "goal oriented" vs. "lacks sensivity towards people", "good social skills" vs. "poor leader", "has sensivity toward people" vs. "lacks motivation", etc.

Inferential processes.

Inferential processes of leadership perception are different from recognition-based processes in that they emphasise the functional aspects of leadership, as opposed to specific traits or features. Rather than relying on observed traits and behaviours, leadership perceptions are formed through linkages to organisational outcomes; they are formed primarily through assessments of causality for outcomes or events, and if leaders are seen as causes of outcomes, and if outcomes are successful or favourable, leadership perceptions of individuals linked with those outcomes will be enhanced. In fact, if people are seen as being more causal in determining favourable outcomes (e.g. producing corporate profit statements for business, winning championships in sports), then the perception that they are leaders is enhanced. On the other hand, outcomes that are unsuccessful may limit leadership perceptions of individuals linked to those failures.

As with recognition-based processes, inferential leadership perception may use either automatic or controlled processes, the former occurring when causal linkages are made based on salience and proximity, and the latter reflecting a more careful, deliberate analysis of likely causal agents for organisational outcomes. Automatic processes are common when leaders make themselves highly salient with respect to favourable organisational outcomes, as in the case reported by Halberstam (1986), of Lee Yacocca, whose self-centred leadership style led people to believe he had been a better leader than his successor, Philip Cadwell, who led Ford Motor Company to much better results than his predecessor, but who had a much more "teamwork" way of leading.

Lord (1985) presented evidence in support of the fact that experts can predict subsequent behaviour of others better than novices, as in a study comparing a school administrator's evaluation of a teacher's classroom behaviour, with the evaluation performed by the students. Nevertheless, while experts may be better at evaluating inconsistent behaviour, novices showed more accuracy at evaluating behaviour consistent with relevant trait *schemas*. Sims & Lorenzi (1992) explain the term "schema" as a way a person represents the organisation of knowledge about a particular concept, containing the features or attributes that are associated with category membership. For example, a category of actors may include specific individuals like Kevin Costner, Harrison Ford and Tom Cruise, and the associated schema is likely to include attributes like "adventurous", "rich" and "handsome".

Dyadic-Level Perceptions and Theories

Much of the theoretical and applied work in the leadership field focuses on the activities of lower-level leaders. At this level, the major concerns of leadership theorists are with how supervisors motivate subordinates (House, 1971), with the decision-making styles of leaders (Vroom and Jago, 1988), or with the needs of leaders and degree of situational control (Fiedler, 1964). On the other hand, inferential leadership perceptions processes are more important for the understanding of leadership at executive levels, which is too far from the level to which this research is dedicated - teacher/student interaction.

The study of dyadic relations between leaders and followers allows us to apply leadership perceptions to the infrastructure of organisations, and so to stay close to the objective of this research.

As Jesuino (1987) recalls, early theories of leadership assumed only unidirectional influence: the behaviours of leaders were thought to have an impact on those of subordinates. They also assumed that the leader behaved in the same way to each of the subordinates, and that their perceptions, interpretations and reactions towards the leadership of a given leader were homogenous. *Vertical dyad linkage* (VDL) theory (Graen, 1976; Graen & Schieman, 1978) presented the process as a reciprocal influence, in which a leader's behaviour is also influenced by the subordinate's patterns of traits and behaviours that constitute the image that they have of effective leadership. Those images are part of a given culture and provide the general framework in which leadership categories are matched, filtered by the experience of the observer in specific organisational contexts. For example, in certain contexts a participatory decision-making style is likely to be perceived as much more appropriate than an autocratic style; in others, the opposite applies.

Vertical dyad linkage theory has evolved from role theory (Katz & Kahn, 1978), in which interactions between subordinate and supervisor are thought to take place within the context of a role episode - a sequence of role communication and expectations - with the development of the relationship between supervisors and subordinates consisting of three phases: in the *role taking* phase, the supervisor communicates to the subordinate a "sent-role", or desired role; the subordinate is then thought to play a relatively passive role, receiving communication from the supervisor but not reciprocating in any particular manner; in the *role-making* phase, the supervisor-subordinate relationship continues to develop and its nature becomes increasingly defined for both parties; finally, in the *routinization* phase, the nature of the exchange becomes routinized and established.

Graen (1976) uses the term *early warning detectors* to express the important early signs that may predict future leader-subordinate relationships.

Those inputs define the limits of the range of negotiation between both; these are given mainly by the perception that the subordinate has of the leader as an individualised source of support, which in turn will dictate the amount of negotiated exchanges between leader and subordinate. Different subordinates will open different channels with the same leader, from the wider (in-group) to the thinner (out-group) negotiation ranges, leading the same person to use more leadership (influence without authority) processes with the former, and more supervision (influence based on authority) with the latter.

Further investigation led by Graen & Schieman (1978) revealed that the range of negotiation was directly related to subordinate satisfaction, but not to productivity; also, Avolio & Howell (1992) found that the level of congruence between leader personality and subordinate personality was a strong mediator between subordinates' satisfaction and leader performance. Other kinds of study (e.g. Pace, Hartley & Davenport, 1992), focusing on preferred leader behaviours by the subordinates, also conclude for the connection between subordinate satisfaction and the consultative-participative style of leadership. Subordinates' initial impressions of leaders, as revealed by Liden & Mitchel (1989), were found to provide their first clues concerning the leader's susceptibility to attempts at ingratiation, which is an important aspect of leader-member exchange.

Drawing an analogy from this section to the teaching situation, it is possible to infer that people use their implicit theories as pertinent mental structures to help them simplify the processes required to recognise effectiveness in teachers, in a way that experts and novices may differ in their perceptions of teaching behaviours. Teacher's traits and behaviours may be useful to provide a general categorisation as effective vs. ineffective, or creative vs. uncreative, which in turn may shape the nature of interactions between teachers and students. With increasing experience, there is a widening of the categories in which people perceive the teacher, within a movement from person-based categories, to category-based processes of recognition.

Vertical dyad linkage (VDL) theory may also contribute to providing a deeper understanding of the processes that take place in the teaching situation. From this theory it can be inferred that there is a reciprocal influence between teachers and students, during a process that may consist of three phases: in the *role taking* phase, the teacher communicates to the student a "sent-role", or desired role; in the *role-making* phase, the teacher-student relationship continues to develop and its nature becomes increasingly defined for both parties; finally, in the *routinization* phase, the nature of the exchange becomes routinized and established. Further investigations, inside the scope of VDL theory, may lead us to conclude that there exists a connection between students' satisfaction and a consultative-participative style of leading the class, but not between this style and students' productivity. Again, the difficulty lies in defining to what extent students' productivity, measured by grades and exams, can be considered as valuable learning.

Bales' Systematic Multiple Level Observation of Groups (SYMLOG)

In the evaluation of Poumadère & Mays (1988), the SYMLOG presents a research-grounded set of theoretical and methodological elements that rest on a continued effort of articulating participant-observation with measurement and theory in the social sciences.

According to Jesuino (1987; 1988), Bales used the basic concepts of *differentiation* and *integration* to explain the development processes of task-related groups: the former are of an instrumental nature, while the latter are mainly of an affective, or expressive, nature. In reporting behaviours detected during group interaction, instrumental categories received opposed behavioural descriptions, such as "gives suggestions and directives, implying autonomy for the others" and "requests orientations and information"; expressive categories included examples of such opposed behaviours as "shows solidarity, raises the status of others, helps, gratifies", and "disagrees, rejects passively, does not help". By analysing the observations, Bales concluded that people tended to recognise as a leader someone who produced good ideas and orientation, and that popular group members were less associated to leadership positions. According to this author, the association with leadership tended to change in such a way that the more the individual was seen as a leader, the lower were his or her probabilities of being perceived as effective in the socio-affective domain; this construct was designated *dual leadership*. In a group there may exist two kinds of leader: expressive and instrumental.

This view moves away from leader traits and behaviours, outside a specific context, towards the construction of leadership processes out of subjects' interactions.

Later studies (Bales, 1970) added personality variables to the group observational procedures, defining a tri-dimensional space with three orthogonal axes, defined by letters: the horizontal one (N-P), with the negative (hostile) orientation to the left, and the positive (friendly) to the right; a vertical one (U-D), opposing dominance, at the top, to submission, at the bottom; another horizontal axis (B-F), defined by the expressive pole, in the frontal direction, and the instrumental pole, in the back. It is within this space that it is possible to analyse leader emergence, as well as describe some of the reasons why a certain group member is seen as a leader. For example, a subject who gets high scores in the space "dominance-friendliness" (UP leader) is seen as representing the leader aiming at social success, as this subject tends to encourage group members to interact and co-operate, but not to compete; also that type of subject tends to address the group as a whole, to ask for information, instead of giving it, to play and relieve tension. If the group moves the subject's scoring towards the instrumental pole (UPF leader), then the task orientation is intensified, but normally at the expense of friendliness and play. The other typical leader, described by Bales is the UNF - autocratic authority - tends to cause the group to polarise and fragment, while providing a poor working environment.

This model may be of considerable importance in detecting shared implicit theories in teaching, as well as in evaluating different perceptions of creative teaching. Thus the typical creative teacher probably tends to be seen as a UP leader, more directed to the relationship with the students than to task objectives.

Leadership theory may still provide us with conceptions of creative leadership, to see if they can lead to further insights in the teaching situation.

Concluding Comments

Having discussed the constructs of creativity and creative teaching, in the preceding chapters, this chapter was aimed at understanding the particularities in the construction of the teacher role, so that it can be seen as effective by those who evaluate it, whether teachers or students.

Symbolic interactionism and role theory provide a means to clarify the social relationship between the roles of teachers and students, as the concept of "role" is articulated within a social structure that incorporates the individual into organised patterns of interaction, conducted in terms of meanings persons develop in the course of their conduct - *symbols*. The individual conforms to collective habits, and acts according to other people's expectations, creating a *self* out of the feedback from the attitudes of others and one's spontaneous behaviours, by means of putting oneself in the place of the other, and responding as the other would do - *role-taking* - and by anticipating the consequences of one's own behaviour - *role-making*.

It is not possible to talk about a *position* without at least implicit references to other positions (e.g. there can be no "teacher" without "students"), and conflict may arise between the self-concept and the expectations of others, if the fit is not satisfactory. A teacher may consider other teachers as the "significant other", and "take" their role accordingly, or keep the students in that position; if this is the case, the effort of imagination that has to be made is much stronger, due both to role distance and to the diversity and changing character of the student population. As the bargaining that has to be done between teacher and student (so that teaching actions become validated) is highly emotional, it is possible that what happens during role making lies far beyond consciousness and rationality, and mainly in the will and effort to sustain a constant update of the perception of the other's reactions to one's actions, so that role support may be achieved. If students, as happens with a leader's followers, give more value to relationship aspects, and teachers (or leaders) tend to be more concentrated on task aspects, it is possible for a teacher's role to be built taking both actors as the "significant other", even though in quite unstable equilibrium: both factors are correlated in such a way that a constant review of one's role construction is required, i.e. a constant search for perfection and thus a creative approach to role making and to performance.

Kelly's personal construct theory proposes that a person's processes are psychologically channelled by the ways in which that person anticipates events, in a search for prediction. The ways in which events are anticipated, named personal *constructs*, are the ways in which some things are interpreted as being alike and at the same time different from other things (e.g. black vs: not black; not white; white), and so every perception of experience is based on the way the person anticipates events. In the case of a teacher it is that anticipation that leads him or her to try to understand the constructs of the students, and to speak in the "student's language", so that communication may take place between the two.

Although keeping the core construct stable, the effort to stay close to the student may lead the self-actualising teacher to change peripheral constructs, and to adapt them to the population at hand, in a way that may be seen sometimes as inconsistent with the expected behavioural framework. A teacher who tries to stay close to the students may have some doubts about how to do it, but not that it must be done; and probably fewer doubts about what must not be done: it is by elaborating personal constructs that the person gives meaning to actions, and interprets other people's reactions as positive or negative, according to their similarity or contrast with what the person thinks it is and what it is not.

Thinking in the students' terms and keeping them as the "significant other" demands an attempt, from the teacher, to elaborate constructs as if he or she were a student, keeping the distinction between what is right and what is wrong in constant challenge and negotiation. And when the teacher's role is made by anticipating their reactions to his or her behaviours, it requires a constant effort to perceive their messages of "sent-role", i.e. the teachers' role they require. In this case, that teacher's role may be "taken" either from past examples of teachers who conformed to that individual's expectations, when a student, or just by opposing past teachers behaviours, if there is a lack of role model. Thus, a teacher who wants to be effective in the eyes of the students does not conform to those expectations by behaving just as the students would like him or her to behave, but by using behaviours taken from a past role model (or opposite behaviours to those of past negative role models), and validating them with the students, till core constructs are made and a personal style arises. Nevertheless, as stated before, this type of role making does not exclude peers or superiors, as they tend to have other requirements - which are not necessarily incompatible with students' requirements, depending on the situation.

As with the teaching situation, conceptions of leadership are also concerned with the leader's effectiveness, and leadership theories have tried to define how this may be achieved by describing the "ideal leader", or the "one best way" to be effective, using three main approaches: trait, behavioural and contingent. The trait approach tries to devise which characteristics make the leader effective in any situation, while concluding that certain traits increase the likelihood that a leader will be effective, but do not guarantee effectiveness, as in the teaching situation. The behavioural approach, which started with Lewin's *autocratic, democratic and laissez-faire* leadership styles, progressed mainly through the findings of Ohio and Michigan universities, which identified two orthogonal, yet correlated dimensions: task-oriented and person-oriented behaviours, whose relative magnitude can be assessed by instruments like the *Leader Behaviour Description Questionnaire* (LBDQ).

These orientations are very similar to those reported in the preceding chapter, concerning the teaching situation, and especially the characterisation of the creative and the effective teacher, and so they may help us to understand and separate the vast amount of literature related to traits, styles and behaviours of teachers.

The contingent approach, involving also the group and the situation, started with Fiedler's theory, which connected the leader's personality characteristics with situational variables, giving rise to three main corollaries: a) leaders have certain traits which orient them either to the task or the relationship; b) trait orientation can be measured through LPC (*Least Preferred Co-Worker*) scale; c) the leader's effectiveness is dependent upon the fit between his or her personality orientation and the situation *favourability* (the amount of control that the leader has over subordinates). Other theories, like Hersey & Blanchard's model, try to articulate the leader's degree of task orientation with situational variables: the subordinates' *maturity* (the more maturity the subordinates' show, the less directive must be the leader's behaviour); and others, which lead us to think that the teacher's behaviour, or personality, may interact with the class, producing different results according to the situation. These theories break with the "ideal teacher" concept and its listings of ideal traits, behaviours or characteristics. Instead it becomes important for the teacher to learn to detect differences between students, and between situations, and to act accordingly

Conceptions of leadership effectiveness, and of creative leadership seem to be of little help in understanding their counterpart in the teaching situation, even though effectiveness appears within a wider spectrum, dependent upon the observer, creativity shows itself more connected with the role of the leader as facilitator, directed to relationship rather than task aspects of leadership.

Although the presentation of the listed models brings important points to this research, in terms of understanding the evolution of structural theories, and the separation between task and relationship aspects, it is in the cognitive, social-perceptual models, linked to symbolic interactionism and role theory, that we can find more elements about the processes analysed in the present research, because leader recognition and teacher recognition may perhaps be explained using similar social-perceptual processes and categorisations. Of the various theories that may fall into this categorisation, two deserved the attention of the remaining chapter, as they were considered inside the role theory approach and directly transferable to the teaching situation: Lord & Maher's implicit leadership theory, and Graen's vertical dyadic linkage theory.

Lord & Maher's theory states that leadership results from a social-perceptual process of being seen as leader by others, either because they recognise some particular characteristic of the leader, as a person, or they infer it from events in which that person participates. Through a social information processing model, leadership perceptions can be explained by two qualitatively different processes: either leadership can be *recognised* from the qualities and behaviours revealed through normal, day-to-day interaction with others, or it can be *inferred* from the outcomes of salient events. In the teaching situation, a teacher may probably be recognised as effective according to the learning outcomes attributed to him or her, and as creative through particular characteristics and behaviours revealed during normal interaction. In accordance with this view, a teacher may be consider creative by the students depending on the type of relationship that is maintained with them. As with leadership, the "creative" approach appears as an attribution made by others.

Graen's vertical dyadic linkage theory provided by the study of dyadic relations between leaders and followers, allows us to apply leadership perceptions to the very understructure of organisations, and so to stay close to the objective of this research, which is limited to classroom interaction between students and faculty. As presented in the text, several studies revealed that the range of role negotiation between leaders and followers was directly related to subordinate satisfaction, but not to productivity, and that the level of congruence between leader personality and subordinate personality was a strong mediator between subordinates' satisfaction and leader performance.

These theories allow us to expect some stability over several organisational cultures of what kind of teacher behaviours may be considered effective or creative in the teaching situation, taking the teacher as an abstract identity; they also show what different conceptions of teacher behaviours and characteristics are more important to specific cultures, roles, subjects, or even degree of experience and interaction in the teaching situation. Independent variables like the organisation, student or teacher role, time spent on that role or in the organisation, and the like, would then be expected to produce some variability in the perceptions of the more appropriate behaviours to the purpose of teaching.

This variability can be further understood through Bales' SYMLOG, where basic concepts of *differentiation* and *integration* are used to explain the development processes of task-related groups, in the sense that the former are of an instrumental nature, while the latter are mainly of an affective, or expressive, nature. The leader's personality variables are here submitted to group observational procedures, within a tri-dimensional space with three orthogonal axes, defined by letters. It is within this space that it is possible to analyse leader emergence, as well as to describe some of the reasons why a certain group member is seen as a leader.

This model may be of considerable importance in detecting shared implicit theories in teaching, as well as in evaluating different perceptions of creative teaching, and characterising the typical creative teacher, who probably tends to be seen as more directed to the relationship with the students than to task objectives.

CHAPTER FOUR

PREVIOUS STUDIES, AIMS, AND PROPOSITIONS

As defined in the beginning, this research aims at comparing the ways both teachers and students see creative teaching, and relating it to the fulfilment of the university's goals of production, acquisition, maintenance, and transfer of knowledge. Within this perspective, the literature review chapters have presented the discussion about what is meant by creativity and creative teaching, and how it fits in with the role and tendencies of today's university. Besides comparing constructs and concepts surrounding the perception of the role of a teacher, the text has focused on the explanation of how creative and non creative ways of performing are evaluated by the different actors who have a part to play in that construction.

Even though the aim of this research suggests a comparative study of perceptions, it must be understood as included in a wider goal of contributing to an explanation of how teachers construct and perform their role, so as to satisfy the requirements of the immediate client - the student.

Besides the findings that were reported throughout the text, which can be used as a reference for research design purposes, some studies deserve to be designated as "previous studies", for reasons of similarity with this one: these will be described just before the formulation of the research problem, propositions and objectives. That is the purpose of this chapter.

According to Phillips & Pugh (1994), the literature review chapters in a dissertation should provide enough data to define the research problem and hypotheses, as well as to define the proposed variables. Moreover, a study must depart, if possible, from what has already been investigated, especially similar studies that have been developed, and from which it is possible to draw conclusions and to follow more reliable paths in the investigation.

Previous Studies

Together with Fryer's (1989) report that there have been very few studies concerning teachers' views on creativity, Stein (1996) considers that "there has been no comparative study as yet of the matches and mismatches in perceptions of creative teaching between lecturers and students, so as to obtain a deeper understanding of what is involved in the transition from a student role to that of a teacher" (p. 2). Nevertheless it was possible to find research on some aspects of this subject, which may help to bring some previous findings to support the research design and its discussion.

Perceptions of Teacher Effectiveness

Money (1992) conducted a study with students and faculty of a college of applied arts and technology, to determine perceptions of teacher effectiveness, by asking respondents to rank seven characteristics that came out of a discussion with students. In a total of 40 nursing students, 40 nursing faculty, 37 technology students, and 21 technology faculty, the findings include the following: 1) "knowledge of subject matter" was rated first in importance, although students ranked it higher than faculty; 2) "effective communication" was ranked second, although nursing students ranked this factor lower than faculty; 3) "well organised material" came third, with nursing students ranking it higher than faculty; 4) "ability to motivate" and "ability to inspire" tied in fourth place with all respondents; 5) "friendly and open" was ranked sixth, with technology students ranking the factor higher than nursing students; 6) "classroom control" was ranked last by all groups.

These findings show some contradiction with others previously described, as the ones from Centra & Bonesteel (1990), who concluded that students tend to favour personal rapport with the teacher, while faculty prefer "intellectual excitement". Nevertheless the study from Money supports the fact that teachers and students have different perceptions as to what matters in teaching, as well as that differences may also arise between students from different courses.

Expert and Novice Teacher Evaluation

In a large-scale survey of pupils' perceptions of a good teacher, in the Caribbean republic of Trinidad and Tobago, Kutnick & Jules (1993), using interpretative criteria defined by the respondents (the pupils were asked to write about the good teacher), found out that to younger children, good teachers met very basic caring and specific and knowledge needs, while eleven-year-olds acknowledged the traditional, didactic role for teachers in their country. Sixteen-year-olds recognised that good teachers may come in a variety of forms, such as "professional", "dedicated", "taught well", and affected both immediate and long-term desirable outcomes. Based on their findings, the authors called attention to the fact that teacher training curricula should be orientated to the promotion of learning and of relational skills, in parallel terms.

In this respect, although referring to leadership, Lord & Maher (1991) have shown evidence that experts and novices differ substantially in the amount and structure of underlying knowledge about leadership, as well as qualitative differences in leadership perception processes. Prior to the development of a category *prototype*, categories are often defined on the basis of exemplars; as experience progresses, so the categories in which people perceive potential leaders widen from person-based categories to category-based processes of recognition.

In the case of Kutnick & Jules's study, it is likely that pupils' perceptions of teaching change with the ageing process, from a person-based category formation, to a category-based recognition, and that they tend to stabilise on reaching a more mature phase, while including a wider diversity of possible models of effectiveness. The doubt that arises in considering teachers and students at higher education level, is whether the designation of "experts" and "novices" may here be applied.

Self - Perceptions of Creativity and of Effectiveness

Using only teachers as subjects, Barros, Neto & Barros (1992), compared views of more than three hundred primary school teachers, against individual cognitive and personality variables like locus of control, perception of responsibility for the results, and sense of personal effectiveness. Using a questionnaire, the teachers rated eight characteristics of the good teacher (scientific mastery, good method, authority, freedom, interest and sympathy with the pupils, effort in class preparation, ability to maintain discipline, and creativity); the terms considered as synonyms of creativity (originality, intuition, imagination, new solutions, autonomy, inspiration, discovery, initiative, genius); and self-perception of creativity in class. Creativity was rated fifth, among the eight characteristics, and those who considered themselves more creative were also those who scored highest on a sense of personal effectiveness.

Even though the reported study does not concern perceptions of students, it sheds an important light on the congruence between self-perceptions of creativity and the sense of effectiveness. In fact, as discussed during the second Chapter, the teacher's efforts move towards effectiveness, which may or may not result in perceived creativity by the students. Seen as self-perception, creativity is directed towards perfection, and it acquires the meaning of creativity, effectiveness, or excellence according to those who evaluate the action of the individual, namely the students and faculty. Again, creativity appears as a hetero-attributed concept, and it may even be possible, as Fryer (1994) concludes, that teachers do not recognise themselves as creative, but only with possessing social attributes and willingness to work hard.

The study of Barros, Neto & Barros must therefore be seen as somewhat outside previous conclusions, although no perceptions of students were used, nor did it take place within higher education.

Comparing Teachers' Creativity

The extent to which faculty was perceived as providing conditions for the nurturing of creativity was evaluated by a sample of more than two hundred students, in a study made by Alencar (1994a). In two universities, one ranked among the best in Brazil (A), and another ranked low (B), students were requested to answer an inventory designed to evaluate the degree that different aspects related to creativity had been fostered on the part of the lecturers.

The inventory consisted of 19 items, answered on a five point scale, describing teaching behaviours like "stimulates students to ask questions in relation to the topics studied", "gives time to students to think and to develop new ideas", "provides conditions for the students to know divergent points of view in relation to the topic under study or investigation", "asks challenging questions in class", "stimulates the students' independence", "provides an environment of respect for the students' new ideas", "uses test and exam questions that require only the reproduction of the content given in class or presented in the textbooks (reverse-scored)", "cultivates in the students an interest in new discoveries and new knowledge", "provides conditions for the students to analyse different aspects of a problem", "stimulates the students' curiosity by means of the tasks required in their courses". The questionnaire was built from theory and research in schools, and after a semantic evaluation by students from the target population, where each student was requested to repeat each item in his or her own words, it was administered to 210 university students, and the results provided a two-factor scale, which was used in the study.

A four-way analysis of variance was used to analyse the data. The factors were: university, gender, stage reached in course and job, each one with two levels. These data indicated that students from university A considered their teachers as giving significantly more incentive to different behaviours conducive to creativity development, compared with those from university B; also that students in the first half of their courses considered their teachers as providing better conditions for the development of different aspects related to creativity. Students' gender and job (whether they had a job or not) provided no differences among the dependent variables.

While differences between both universities were attributed, essentially, to the rate of PhD faculty in each institution (almost all faculty had a PhD in university A, and almost none had it in university B), those obtained between first and second half of the course were attributed to the fact that Brazilian high schools have a strong emphasis on memorisation and reproduction of knowledge, and so the student is submitted to a considerable transition when entering the university, in terms of independence and initiative, which tends to become a normal perception after some time spent at the institution.

Alencar's study provides interesting evidence about the influence that independent variables may have in judgements concerning creativity in teaching. In this case, younger students perceived teachers as being more creative than older students did, and different organisations seem likely to influence students' perception of creative teaching. Although the questionnaire provided only behaviours aimed at students' development, which may be considered as directed to the perception of relationships between teachers and students only, it may constitute a useful tool for the purpose of evaluating the concurrent validity of the instrument developed in this research.

Perceptions of Students and Faculty

Abeles (1997) described a study where a 123-item faculty evaluation instrument was developed out of 75 essays written by music students, describing "a teacher who stands out most in your mind". From the initial 123 items, a resulting 5-option Likert-type scale, containing 30 items, was submitted to 93 undergraduate and graduate students, resulting in a four factor solution used for later scale development. This later scale, named Applied Faculty Student Evaluation Scale (AFSES) was submitted to interjudge reliability testing and to correlational comparisons with another scale - Colleague Teacher-Description Scale (CTDS) - together with further faculty evaluation procedures. The results seem to indicate a negative correlation between student evaluation and colleague evaluation of applied instruction, that is, students and faculty differ in their perception of faculty applied performance abilities. According to the author, students seem to suffer from a "halo effect" and are unable to discriminate among the faculty performance abilities. Nevertheless, students and faculty revealed a positive agreement concerning classroom instruction.

The study reported the highest factor loadings on one factor, after varimax rotation, of the items grouped under the term "Rapport". The items were: "He does not instil a feeling of confidence in his students", "His enthusiasm is infectious and inspiring", "He encourages the student to express himself", "He brings out the best in his students", "He is too overbearing", "He shows a genuine interest in the student outside the lesson", "He is patient and understanding". This factor correlated .98 with the score for "General Competence", and had a significant negative correlation (-.41) between ratings given by students and faculty.

This study brings into the discussion the never-ending debate about students' ratings of instruction, which has been sufficiently commented in Chapter Two, whose conclusions pointed to arguments like those of Mackeachie (1990): student judgements are stable and agree with those of peers and administrators, even though they may sometimes rate higher an expressive teacher; he claims that "student ratings are the best validated of all the practical sources of relevant data". The most important point for this research is the one that has to do with the relevance of the "rapport" factor as the central question of classroom instruction, as well as the differences between students and faculty in the perception of its relative importance to overall effectiveness.

Within Teachers' Perceptions

A study of perceptions of creativity among British teachers made by Marilyn Fryer (Fryer, 1989; Fryer & Collings,1991) describes how this sample of 1028 teachers from 57 schools/colleges, in various geographical regions of England, Wales and Northern Ireland, participated in the study by answering a questionnaire designed to elicit their perceptions and attitudes on a variety of topics concerning creativity. The questionnaire was complemented by interviews with a sub-sample of 31 teachers, a school survey to examine the association between attitudes to creativity and school factors, and still the Torrance Ideal Pupil Checklist, and the Torrance Personality Checklist.

The results yielded a strong difference in perceptions of creativity between male and female teachers; while females tended to see creativity as being something personal, males tended to characterise it more in objective, impersonal terms; while women tended to define creativity in terms of "self-expression" and "awareness of beauty", men stressed "innovation" and "convergence". Also, as reported by Fryer & Collings (1991), a strong relationship between certain views and the teaching style preferences of the subjects, in which females revealed themselves more pupil-oriented. General subject teachers (non-specialists), creative arts teachers, business, humanities, younger teachers, and nursing tutors were found more pupil-oriented than maths, science, technology teachers, and older tutors, who preferred a more instrumental approach. In another report, Fryer & Collings (1990) stress the fact that "what best distinguishes teachers highly oriented to creativity from those much less oriented to it is a preference for a pupil-oriented approach to teaching" (p. 217). The authors consider that this may indicate links with an underlying value system linked to person-orientation, that is, to a preference for dealing with, or involving oneself in, emotional, social or interpersonal issues.

This study brings some important findings related to the influence of gender, as well as other teachers' variables, in the perceptions of the relative importance of creativity, which will have to be taken into consideration in this research. Also, the fact that pupil-orientation and person-orientation may prove to be similar predictors of orientation to creativity can be investigated as to its fit within the higher education environment. Gender differences as well as course differences among students will probably provide within-subject variability, and must then be analysed.

Pupils' Perceptions of More and Less Creative Teachers

Furman (1999) reported a study in Slovakia, where 600 8th-grade pupils divided 18 teachers into two categories - more creative, and less creative - whose classes were subjected to observation for as many as five lessons each teacher, to assess differences in the teachers' behaviours, and see how they matched the two categories. Frequencies of coded behaviours were used in connection with a Flanders coded behaviour categorization list of categories, instead of time spent in each behaviour.

Results indicate that all teachers preferred direct teaching methods, which allow them to control almost all pupil activity, and little support to enhance pupils' questions, which were very rare, in all cases. Teachers considered more creative were found to differ in intensity, in the various categories of behaviours, especially in assistance behaviours and questioning frequency, revealing that the students expect structuring and effective work coordination from the teacher. The role of praise was also evaluated, to conclude that the frequency of teacher's praise or blame does not result automatically in positive or negative feelings in pupils, as praise following success and the absence of blame following failure are sometimes used by adults to imply low ability of the recipient.

This study reminds us that it is difficult to "expect unequivocal findings concerning the effects of positive or negative feedback in the classroom, unless other important variables (for instance, pupil's perceptions of task difficulty) are under experimental control (p. 272)".

Summary of Findings Related to This Research

The first study presented in this chapter, reported differences between perceptions of students and faculty, and between students from different courses; the former showed the students more concerned with task orientation and less with relationships orientation than faculty; the latter revealed that if one group of students prefers one type of orientation, the second group prefers the other orientation.

The study by Kutnick & Jules provided evidence that maturity in young pupils tends to alter their perceptions about what is important in a teacher, and more mature pupils tend to prefer an equilibrium between task and relationship orientations; the one by Barros, Neto & Barros found that teachers who considered themselves more creative were also the ones who had the highest scores on a sense of personal effectiveness.

Alencar's study produced a instrument that can be included in this research for validity evaluation purposes, and produced data showing that the importance given to creative teaching depended on the organisation considered, and the fact that the students were in the first half of their courses was favourable to their perception of creativity in teaching. This last factor was attributed to the lack of creativity in teaching before entering the university. The gender and having a job or not did not prove to be significant independent variables; the single most important factor which differentiated both organisations considered, as far as the quality of teaching, was the proportion of PhDs.

Another study, made by Abeles, revealed that students and staff differ in their perceptions of faculty applied performance abilities, with the former experiencing some difficulty in discriminating among these abilities; also that a factor named "Rapport" was responsible for the explanation of almost all variance in the instrument used, correlated positively with another factor named "General Competence", and negatively between students and faculty.

In the study of perceptions of creativity among British teachers, reported by Fryer & Collings, different results appeared between male and female teachers, with the latter seeing it in more pupil-oriented terms, as well as general subject teachers (non-specialists), creative arts teachers, business, humanities, younger teachers, and nursing tutors.

Finally, the study from Furman (1999) tells us about the difficulty in separating teaching behaviours pertaining to teachers considered more and less creative by their pupils, as it tends to be context dependent, and probably far from theoretical descriptions of creative behaviours in class.

Although none of the reports presented can be considered similar to this research, several conclusions may be drawn that may help to structure the present investigation, complementing the literature review made in the preceding chapters, and leading to a more precise definition of the aims and propositions of this study. Besides examining the differences in perception between students and faculty, the research instrument must be able to separate task and relationship aspects of teaching, to see if students respond more favourably to the latter, while faculty concentrates on the former. Within -subject analyses must rely on independent variables like gender, college, course and course year, as to the students, and to gender, college, academic level, and experience teaching, as to faculty.

This group of variables seems to invite the need for a two factor instrument - task and relationship factors - to separate personal conceptions of creative teaching, within the creative vs. non creative construct, as well as its distance from self perceptions of teaching (real, in the case of teachers, and imagined, in the case of students), and to ideal perceptions of teaching (free from inner and outer constraints). The distance between perceptions of real images and of ideal images will also provide relevant data to the understanding of role construction.

The instrument's concurrent validity will have to be checked against other instruments already described, namely the Leadership Behaviour Description Questionnaire (LBDQ), to evaluate its power to discriminate between task and relationship behaviours; the SYMLOG, to provide a measure of proximity between the typical creative teacher and the positive-expressive leader (UP leader); Alencar's questionnaire, to see its confrontation with a theoretical designed list of teaching behaviours and characteristics. Although outside the purpose of this verification, Fryer and Collings (1991) person-orientation questionnaire may also bring important points to the discussion, and should therefore be checked against the findings provided by the instrument to be constructed.

Aims and Objectives

As earlier described, the present dissertation aims at providing a comparison between the ways teachers and students value creativity and effectiveness in teaching, and relating it to the fulfilment of the university's goals of production, acquisition, maintenance, and transfer of knowledge. This purpose must be seen in its wider goal of contributing to an explanation of how one constructs and performs the role of a teacher, satisfying the requirements of the immediate "client" - the student - as well as the requirements of peers and superiors; it is therefore dedicated to those who want to pursue a creative approach to teaching and learning.

Specifically, the objectives of this research are:

- to examine systematically the concept of creativity;
- to clarify the distinction between the concepts of effective teaching and creative teaching;
- to present mechanisms of teacher role construction, so that creativity may be understood in the specific context of teaching in higher education;
- to draw links between leadership theory and research, and teaching theory and research, so that the latter may take advantage of the relatively more developed approaches of the former;

- to build a reliable and valid research instrument, based on Kelly's personal construct theory, designed to evaluate differences in perceptions of teaching;
- to identify how lecturers and students conceptualise creative teaching;
- to find out what students and lecturers understand by non-creative teaching;
- to chart the ways in which lecturer and student perceptions of creative teaching differ;
- to evaluate the relationship between students' perceptions of creative and non-creative teaching and their gender, course, course year, and School;
- to evaluate the relationship between lecturers perceptions of creative and non-creative teaching and their gender, academic degree, length of teaching experience, and School;
- to chart the differences between lecturers' and students' perceptions of how they teach (perceived reality), or would teach (imagined reality), respectively;
- to chart the differences between lecturers' and students' perceptions of how they would like to teach (imagined ideal);
- to compare the magnitude of the separation between real and ideal images of the self as teacher, of teachers and students;
- to collect original descriptions of teaching, of lecturers considered creative by the students;
- to verify the relative position, between students and peers, of teachers who are considered creative, as to their conceptions of creativity and effectiveness in teaching;
- to examine systematically the discourse of these lecturers, in order to support the quantitative data obtained with the questionnaires;
- to discuss the transition of a student role to that of a teacher, based on theoretical approaches within symbolic interactionism and role theory, as well as on analogies with leadership situations.

Propositions

In an attempt to answer the main question of this research "Do students and faculty value creativity and effectiveness in teaching in different ways?", the following propositions may come as possible answers:

- Students and lecturers will characterise creative teaching in similar ways.

As Lord & Maher (1991) explain, category prototypes are often defined on the basis of typical or abstract exemplars. In what could be termed implicit theories of teaching, people may then define a certain prototype (creative teacher) in similar ways, no matter what roles they perform, even though, as Lord (1985) explains, novices show more accuracy at evaluating behaviour consistent with relevant traits. In this case the length of experience as students or as faculty is likely to have influence on the perception of the construct creative vs. non-creative, as reported in the studies made by Alencar (1994a) or Kutnick & Jules (1993). Nevertheless, it is not possible to conclude if possible differences in perception are connected to the role or to the length of experience.

- Students will imagine themselves as more creative teachers than lecturers will.

Considering the creative teaching approach more connected to the relationship side of teaching, as discussed in Chapter Two, students will tend to imagine themselves more concerned with this aspect, as the conflict between role performance and the need to stay close to the student is not as real as in the case of faculty. This premise is coincident with Abeles' (1997) findings.

- Lecturers will perceive themselves more effective as teachers, than students think they would be, if they were teachers.

Role constraints will tend to lead the faculty to give preference to task aspects, more related to the concept of effectiveness. In this way, lecturers will tend to see themselves more effective than students imagine themselves being as teachers.

- Lecturers will perceive their actual performance (real) as further from what they think is important (ideal), in terms of creativity and of effectiveness, than students will theirs.

As Stewart, Stewart & Fonda (1981) explain, concerning Kelly's personal construct theory, the individual's construct system develops through life, and so it is likely that real and ideal images of teaching change with time and with role construction. As students have yet to experience the difficulties in carrying out a teacher's task, they are likely to perceive real and ideal images closer than lecturers.

- Creative teachers will tend to score close to students, as to the way they value creativity in teaching, and close to faculty, as to effectiveness.

This proposition is a normal consequence if the whole group of propositions prove to be true, as creative teachers build up their roles out of students' perceived expectancies, but also out of what is expected of them as professionals, by their colleagues. A creative teacher will then be just someone who has achieved a more clear role definition.

PART II - METHOD

This research aims at comparing the contrasting views of creative and effective teaching, of students and lecturers in higher education. The choice of the Polytechnic environment had to do with the recent (1985) implementation in Portugal of this higher educational level, which, in the words of a former Secretary of Higher Education (Lynce, 1993), has reached, in ten years, up to 40% of the total of students in higher education. Because it is so recent, previous research is scarce or non existent, as a former minister of education complains himself (see Carneiro, 1998), and so it is another valid reason to dedicate the research to this specific environment.

The subjects were lecturers and students of undergraduate courses, in the seven polytechnic Schools of the *Instituto Politécnico de Lisboa* (IPL) [Lisbon Polytechnic Institute]. From these Schools, samples were drawn in order to have students and lecturers in each of the independent variables chosen (students: School, course, course year, and sex; lecturers: sex, years of experience teaching, School, and academic qualifications). Following an initial qualitative approach, questionnaires (based on personal construct theory, and built according to the repertory grid rationale) were administered in the Schools chosen, according to sampling criteria. Interviews of lecturers, as well as direct observation of examples of creative teaching, were done to complement quantitative data.

The interviews aimed at collecting examples of creative teaching, explaining them in the words of its practitioners, so that a wider picture of this type of teaching could be drawn up. Class observation was aimed at detecting matches and mismatches between the conceptions of the interviewees and their practice with the students, so that differences between students' and teachers' perceptions of creative teaching could be further analysed. The teachers selected as examples of creativity in teaching filled in a questionnaire, whose results were compared with those of their colleagues and of students.

This part includes a first chapter on theoretical considerations about reliability and validity, and about the method used to build the main research instrument used in this study - the grid method. Chapter Two - Subjects, will contain the description and the general organisation of the polytechnic system, population of the IPL, and of each of its Schools. The design and construction of the instrument will be dealt with in Chapter Three, while Chapter Four will include the pilot study, made in one of the Schools, and the validation study of the questionnaire will form Chapter Five. The general and specific procedures that were followed will make up the last chapter (Chapter Six) of this part.

CHAPTER ONE

RESEARCH THEORY AND GENERAL PROCEDURES

This chapter aims at presenting theoretical considerations concerning the research instruments and procedures, in order to clarify designations, meanings, and particularities of the research theory involved in this investigation. It will include considerations of reliability and validity, later applied in the research instrument, as well as the repertory grid method, based on Kelly's personal construct theory. Methodological procedures, as applied to sampling, interviewing, and class observation will close the chapter.

Reliability and Validity

These considerations have to do with the need to clarify some conceptions that are central to this study, as far as the reliability and validity of its results are concerned.

Reliability

According to the APA (1990) definition, *reliability* means the degree to which test scores are free from errors of measurement, i.e, are free from the conditions that may vary between each application, and from within-subject changes over time. In simple terms, it refers to the test property that provides similar results with the same sample of subjects, no matter the time separating each application of the test. Ideally a person should obtain the same score each time the performance is observed, but as this objective is impossible to attain using a test, the average of the ideal scores that the person should obtain in a very long series of trials (assuming no practice effect during testing), called the *true score*, and the fluctuation of the person's scores within the series, called the *error*, result in a coefficient that is a combination of both variances.

As explained by Cronbach (1960), this property may be observed by using the same test on two occasions, or by using a series of "parallel" forms. Using the former procedure we may obtain a test-retest correlation, called *coefficient of stability*, or *reliability coefficient*, as in the designation proposed by Magnusson (1966), because it tells us how stable this particular performance is; using the latter procedure, another measure of correlation is obtained - the *coefficient of equivalence*. Several time intervals may be observed, depending on the test, but, as Cristensen (1985) suggests, a 12-day period provides good conditions for reliability calculation.

When only one form of the test can be given, an internal consistency procedure may be used - *the split-half method* - provided that the two halves of the test are independent (e.g. even-numbered and odd-numbered items), so that success in one item does not interfere with items in the other half of the test. The correlation between these two halves of the same test provides a substitute for the coefficient of equivalence.

Besides being free from external conditions, the reliability of a test is dependent on its number of items, and the homogeneity of the population of items (the extent to which the items measure the same variable). Magnusson (1966) designates this relationship as the *internal consistency coefficient*. As a rule of thumb, the more items the test has that measure the same variable, the stronger the internal consistency coefficient, but if length may improve factors like guessing or scoring errors, it increases boredom and may reduce the test's reliability, instead of increasing it. In general, as Cronbach (1960) advises, the number of items necessary to raise the reliability coefficient of a test above .70, may reduce its validity. As the APA Manual (1990) dictates, the internal consistency coefficient (e.g. Cronbach's Alpha) is no substitute for test-retest, or parallel form procedures of calculating the reliability coefficient of a test.

Validity

Establishing the validity of a dependent variable involves obtaining evidence to support the hypothesis that the variable actually measures the construct which it is supposed to measure, but as this is dependent upon the existence of a perfectly stable theoretical construct, sometimes the operational definition is used instead of the construct (e.g. intelligence was defined as what the intelligence tests measured), and other times, as Christensen (1985) explains, the correlation between what we measure and other measures that are known to be valid, is used as a proof of validity. This is why the use of more than one dependent variable, provided that they are not too correlated (e.g. .95 or above), as they would be identical measures, nor too little (e.g. a non-significant correlation), as they would not be measuring the same aspect of the construct under study.

The types of validity vary with the kind of research that the several authors are dealing with, leading to many designations and descriptions. Nevertheless, as stated in the APA (1990) Manual, one type of validity is considered among authors as a central issue in any measuring instrument - construct validity. A test is said to have *construct validity* when its score has some meaning of interest, related to some theoretical construct, as, for example, in studies of leadership behaviour, where constructs like consideration for subordinates (giving praise, asking opinions) and initiating structure (setting goals, organising tasks) are part of a framework for understanding the behaviour of leaders.

As Cronbach (1960) explains, while other types of validity may be examined in a single experiment, construct validity is established through a long-continued interplay between observation, reasoning, and imagination. That is why evidence for construct validity may be obtained from a variety of sources:

- Intercorrelations among items (e.g. internal consistency coefficient, convergence in exploratory or confirmatory factor analysis), or stability between measures (reliability coefficient). Both support the assertion that a test primarily measures a single construct.
- Substantial relationship (*convergent validity*) with measures that are considered to belong to the same construct, or weakness of relationship (*discriminant validity*) with measures that are of a different construct;
- Relationship among different methods of measurement and among various non-test variables.
- Analyses of individual responses, or thinking aloud protocols, to see if they corroborate test results
- Producing differences among groups or treatments that are hypothesised to result in different scores.

Construct validity, Magnusson (1966) recalls, is especially useful with reference to tests measuring traits for which external criteria are not available.

Content-related evidence demonstrates the "degree to which the sample of items, tasks, or questions in a test are representative of some defined universe or domain of content" (APA, 1990, p. 10). The methods of assessing *content validity* rely mostly on expert judgement about the fit between parts of the test and the defined universe, and about the way the test is scored, but there is often no sharp distinction between test content and test construct. Its assessment is more common in instructional settings, where it is necessary to compare the test with aspects like the aim of the instruction given, the material that the students should have grasped, the relative importance of the different parts of the course, etc. Unlike other types of validity, content validity cannot be expressed as a validity coefficient.

Again, the APA Manual (1990) defines *criterion-related validity* as the demonstration that "test scores are systematically related to one or more outcome criteria" (p. 11). Logically, the value of this type of validity depends on the relevance of the criterion measure that is used, and the question to be asked is "How accurately can criterion performance be predicted from scores on the test?" Still according to the Manual, two designs for obtaining criterion-related evidence can be distinguished: a *predictive* study (e.g. vocational, selection or classification test scores compared with an outcome after a given time) obtains information about the accuracy with which early test data can be used to estimate criterion scores that will be obtained in the future; a *concurrent* study (e.g. clinical tests compared against clinical diagnosis) serves the same purpose, but it obtains prediction and criterion information simultaneously.

Another type of validity coefficients, more connected with survey-type studies, is proposed by Christensen (1985), and addresses the extent to which the results of an experiment can be generalised to and across different persons, settings, and times - *external validity* -, corresponding to another three broad categories of validity: population, ecological, and time. *Population validity* refers to the ability to generalise from the sample on which the study was conducted to the larger population of individuals in which one is interested. It has to do with the difficulties in selecting an appropriately representative sample of the target population, and its index is related to sampling errors, especially when one wishes to draw inferences between populations (e.g. the generalisation of results obtained with an experimentally accessible population of students from one university to the whole student population). *Ecological validity* refers to the ability to generalise the results of the study across settings from one set of experimental conditions to another (e.g. generalising results from a laboratory setting to real environment, or from one organisation to another), and it can be said that ecological validity exists to the extent that the treatment effect is independent of the experimental setting. Multi-treatment interference phenomena, the Hawthorne Effect (the fact that one's performance is affected by knowledge that one is in an experiment), the experimenter effect, and the pretesting effect are examples of aspects that may interfere with the ecological validity of a study. *Time validity* refers to the extent to which the results of an experiment can be generalised across time, like the variation that may appear regularly over time in parts of the population (seasonal variation), or within the whole population (cyclical variation), or even within the individual (personological variation).

The Repertory Grid Method

These considerations have to do with the method on which the construction of the main research instrument was based, as well as the discussion of the characteristics that a measuring instrument must have.

The Repertory Grid

As explained in the literature review, Kelly's personal construct theory postulates that real events are interpreted by people in different ways, and these interpretations are equally real to the individual under consideration, so that thoughts or ideas about external things have a reality which may be as convincing as the things themselves, and people are distinguished by their capacity to represent the environment in different ways. Persons differ from each other in their construction of events, and in the relationships they establish between constructs and, as Gammack & Stephens (1994) explain, they try to improve these constructs to increase their repertory by altering them to provide better fits within larger systems. This construction of events may be appreciated by the use of an instrument called the Repertory Grid.

According to Feixas & Cornejo (1992), a grid may be defined as any form of sorting task which allows for the assessment of relationships between constructs and which yields these primary data in matrix form. The grid method does not assume that the subject means what the experimenter means by particular verbal labels involved in the test - on the contrary, the method is designed to help ascertain what the subject means by particular verbal labels.

The basic components of a grid are constructs and elements. A *construct* may be described as a bipolar abstraction which a person uses to summarise, give meaning to and anticipate events. *Elements* are the things, people or events which are abstracted by a construct and, in construct theory terms, any construct can be an element within the range of convenience of a more superordinate construct. According to Stewart, Stewart & Fonda (1981), elements can be nouns and verbs, people, events, objects and activities within which all abstractions, adjectives or adverbs must be avoided.

As the grid method only allows for the specification of one relationship between each element and construct, and where the dichotomous allotment procedure is being employed, the subject will be able to describe an element in terms of one pole or the other, but not both. As Collet (1978) indicates, some subjects may complain that both poles apply equally to an element, and the solution may well be to use only one pole, putting all constructs in only one column, or using only one construct in each pair that, after careful consideration, provides the best evaluation of the subjects' conception.

Gammack & Stephens (1994) consider the grid method as a qualitative research technique, often compared with structured interviewing, that allows for the collection of quantitative data that can be processed statistically. They recommend that the matrix resulting be used primarily as a conversation focus for complementary qualitative analysis involving in-depth interviews; exploration of definitions; relating elicited constructs to events and work practices and identification of their range of convenience. Such analysis should aim to elaborate the semantic and organisational properties of the elicited grid with respect to the purpose of the enquiry.

Bannister & Mair (1968) stress the fact that the repertory grid is not a test (although any particular grid could be made into a test) but a methodology which, for practical purposes, is extremely variable.

Grid Construction

A grid is constructed asking the subject to describe ways in which an element differs from others, in what Gammack & Stephens (1994) consider to be three stages:

1. The elicitation (or presentation) of elements, identifying the entities in the area of construction to be investigated;
2. the elicitation of constructs, identifying the distinctions which can be applied amongst these elements; and
3. the construction of a matrix (grid) of elements and constructs.

The best known method for eliciting the constructs is the *minimum-context card* or *triadic* method. 'This involves presenting three elements, asking the question "In what way are two similar?" or "How does one differ?" or "What is the opposite of this characteristic?". The term that someone uses to unite two elements is referred to as the *emergent* or *explicit* pole of the construct, and that which defines the third element in the triad as the *submerged* or *implicit* pole of the same construct.

There are no fixed rules and as many triads may be presented as the investigator deems necessary. For example, the subject may say that both *mother* and *boss* always seemed to know the answers, but *father* hesitated. This distinction produces two contrasting poles, which may be labelled for convenience as *knowledgeable* and *hesitant*, and can probably be extended to other people in the set, and, if constantly applied, does more than characterise the individuals concerned: it also provides an operational construct, giving a more extensive definition of a particular channel of thought than the words used to symbolise it.

Although Kelly was quite insistent that the person be allowed to elicit the constructs, Collet (1979) reports several studies where constructs have been provided by the experimenter, concluding that there is no particular difference in the results provided by elicited or given constructs.

There is no specific number of constructs and elements to be elicited, although it is generally accepted that, as Feixas & Cornejo (1992) suggest, fifteen is the maximum, and that the individual interview must not exceed one hour. They also advise the use of the "ideal" figure, as well as the "real" (the self), in every eliciting of elements related to people, as other authors like Soczka (1988) agree. Stewart, Stewart & Fonda (1981) provide a detailed description of examples of how the experimenter can obtain more constructs from the subjects, simply by going up (asking "why") or down (asking "how") the ladder of abstraction.

Rating Constructs

Three methods are normally used in the allotment of elements to constructs: the dichotomous method, the rating scale method and the ranking method.

In the *dichotomous method* the subject is asked to consider each construct in turn and to say which pole of the of the construct describes each element. If, for example, the subject was offered the construct *kind-not kind*, for the first row, he or she would be asked to consider the first element - that is, the person whose name appears in the first column - and say whether that person was kind or not. Normally a judgement in line with the emergent pole is recorded with a one (or a tick) in the appropriate cell, while a judgement in line with the submerged pole is recorded with a nought (or a cross). By taking each row separately and by working through all the elements one at a time, the investigator and the subject should conclude the session with an array of ones and noughts in the cells of the matrix, and no empty cells.

The *rating scale method* involves the subtension of a scale across the two poles of the construct. As with all scalar techniques there is no obligatory number of points, although according to Viaplana & Alvarez (1992), researchers usually employ either a five or a seven-point scale. When this method is used then the antonym of the emergent pole rather than its negation is located on the opposite pole. Where, for example, the subject has offered the terms *kind* and *mean* to distinguish members of an elicitation triad, then these terms are located at the ends of a scale and quantified with such expressions as *extremely* or *very* in order to distinguish the extremes from the intermediate points. Where a mid point is included it may be marked as *both* or *neither*, and it is this provision which makes nonsense of any attempt to employ the emergent pole and its opposite. Clearly, the subject's task would be complicated by having to decide whether an element was "neither kind nor not kind", or "both kind and not kind"; thus the rating scale method does not have necessarily to use the two poles, but only one, placing all constructs in the same column, and asking the subject to provide his or her dimension of agreement with the construct, using the points of the scale.

When using the *ranking method* the subject is asked to consider all elements in relation to each single construct (only one pole/column is provided), using one of two procedures: the subject may be confronted with an array of cards on which the names of the elements have been written and then asked to nominate the most representative from among the set; that card is then withdrawn and the procedure repeated until all cards have been removed. Ranking eliminates the problems that might arise from different people placing different constructions on the terms that qualify the scale points, and therefore has the advantage of being better suited to cross-cultural studies where problems of translation equivalence are paramount.

When asking the person to rate each element in each construct, it is preferable to use the across-method, in which the person rates every element in the same construct before proceeding to the next.

Quantitative Evaluation of Data

Starting with the non-parametric hand-made factorial analysis, proposed by Kelly himself, Viaplana & Alvarez (1992) list various software products that have been adapted or prepared for the repertory grid method, including complex multivaried analysis, and finally concentrate on the correspondence factorial analysis. As more common methods, they mention principal components analysis, cluster analysis and multidimensional scaling, demonstrating their preference for the first because the last is a less reliable procedure, and cluster analysis, being mathematically more appropriate to measure the proximity between variables, falls into the danger of taking bipolar constructs as two separate categories (both poles appear negatively correlated, with a high distance coefficient) while in fact they are only one.

Using correspondence factorial analysis, it is possible to include constructs and elements in the same analysis, but it is of no use when the elements are provided by the experimenter.

Reliability and Validity of Instruments Based on the Grid Method

As in cognitive tests, high reliability in personality measures is considered one of the most important indices of a "good" test. Nevertheless, since the grid method and the theory underlying it, is a procedure which affirms that "man is a form of motion", it is necessary, as Bannister & Mair (1968) explain, to challenge the orthodox notion of high reliability as an invariably desirable characteristic of tests, like in the words of Kelly, when he once defined reliability as "that characteristic of a test which makes it insensible to change". Instead of stability, the authors rely on what they call *predictable stability* and *predictable change*, recalling that "if two tests are of equal validity but of unequal reliability (stability), the less reliable one offers the greater hope for increased validity" (p.156).

In a study made by Bannister & Mair (1968) they concluded that subjects reproduced about 70% of their constructs and elements, one week after the first administration. They also report other studies where values of reliability (Rho Coefficient) between .60 and .80 were found, together with estimates of mean population patterning in construct relationships with a high degree of reliability, though estimates of individual construct relationship were found to be far less reliable.

Even though Kelly's definition of validity ("the capacity of a test to tell us what we already know") may seem only humorous, it is true that we have a tendency to assess the validity of a novel measure in terms of its degree of association with dimensions whose nature we supposedly already understand. If face or *content validity* seems to little more than the assertion that the test operations are obviously subordinate constructions, directed implied by well known given superordinates (e.g. speed in device handling implies degree of manual dexterity), the concept of *predictive validity* focuses attention on checking the assumed relationships between the subordinate constructions (often termed "operational definitions") and the superordinate constructions.

Because the repertory grid intrinsically measures association, the existence of statistically significant relationships in a subject's grid indicates predictive validity for the measure, and if such significant relationships appear within most grids for most subjects, then *construct validity* exists. As Bannister & Mair (1968) explain, within one culture each individual tends to have construct relationship patterns which are similar to those of other individuals, and it is possible to have significant relationships between constructs for individual subjects, and yet to respond differently to similar events (e.g. people may score similarly the construct of "creative teaching" and have different conceptions of the whole concept), just as it is possible to have similarity of patterning of construct relationships between subjects, without any consensus of agreement about the allotment of the elements construed. This suggests that the grid can separate out the two aspects of the subjects' performance (construct patterning and element allotment), and differentiate between people's absolute agreement on stimuli and similarity between the personal theories underlying their approach to stimuli.

Finally it is important to stress that people show more stable relationships between constructs subsuming things than they do between constructs subsuming people, and that the grid method allows for the differentiation between two kinds of constructs: *constellatory constructs* (the one which fixes the other realm membership of its elements, as happens with typological or stereotypical thinking - e.g. if this is a ball it must be round); and *prepositional constructs* (the one which carries no implications regarding the other realm membership of its elements - e.g. any roundish mass may be considered, among other things, a ball).

Applications

Although the initial applications of the grid were oriented to clinical purposes, especially (Collet, 1978) schizophrenic thought disorder, it rapidly expanded to other uses, especially as an useful system of questionnaire construction because, as Stewart, Stewart & Fonda (1981) explain, it forces people to put into words perceptions they have but have never verbalised.

Gammack & Stephens (1994), for example, report how they used the method in a study of quality control of strip steel, to build a computer operated inspection system, to replace the existing team evaluation system of classification and detection of steel defects, which was too much dependent on the team's experience. After eliciting several inspector's repertory grids, using possible defects as elements in the columns, and ways of detecting them in the inspection video screen, as constructs in the rows, they came to the conclusion that it was possible to work with only three categories of defects (process diagnosis, ease of detection and process control), from which they developed a diagnostic profile for each defect, easily adaptable to computer programming. In this study, the strength of the repertory grid in allowing a construction in the subject's own language provided the basis for a more valid account, with implications for information system design.

In a second example, Gammack & Stephens (1994) explained how they made a classification of names of diseases and medical conditions, for an expert system development in an insurance company to which the existing theoretical medical classification was totally inadequate for non-medical experts.

Stewart, Stewart & Fonda (1981) mention the fact that the area of market research was one of the first business applications of the grid, because its usefulness lies in the potential to give the researcher descriptions of his products in the consumer's own terms. The first example of an extensive list provided by these authors, is a case of a publisher who had decided that he wanted to commission a book that would be a best-seller, and so he ran construct-elicitation interviews with a sample of typical book buyers, at several levels (buyers for shops, buyers in shops and buyers for libraries). He used as elements the names of existing best-sellers mixed with names of books supplied by the interviewees, who were asked to name some recent books they had enjoyed reading.

As mentioned before, fields like market research, quality control, questionnaire design, survey control, organisational research, training evaluation, counselling and others make the grid method a very useful tool to put into words perceptions people have difficulty in verbalizing, or when working with the kind of "fuzzy" concepts like "creative teaching", which is a central issue in this research.

Sampling Considerations

As described further in this text, the total population of the IPL is about 13,000 students and 900 lecturers, and so the corresponding representative sample, according to Christensen (1985), when a .05 confidence interval is desired, is about 370 students and 270 lecturers, respectively. Nevertheless, the same author admits that a group of 35 subjects provides the researcher with enough variance to draw inferences, and when using an analysis of variance design with several levels of the independent variable, then 15 subjects per cell are recommended.

As the design adopted considers that, besides the condition of student and lecturer, inferences must be drawn about the School considered, academic degree, and years of experience teaching, in the case of the lecturers, and about course and course year, within the School context, in the case of the students, then a *sample of convenience* (Henry, 1990), which has a within cell distribution of at least 15 subjects per cell, can be considered as acceptable.

Considerations on the Interview Method

As stated earlier in this text, the interviews were aimed at enlarging the scope of this research, by providing substantial descriptions of styles from lecturers considered creative by the students.

Starting with the concept of interview proposed by Ghiglione & Matalon (1993), "a conversation with a purpose", the interviews may be seen as an opportunity for discussion of subjects of interest to both the interviewer and the interviewees ranging from "totally free conversations with purpose", to semi-directive interviews.

As to the procedure, care must be taken in order to approach each subject individually; make a presentation containing data about the interviewer, the scope of the investigation and the aim of the interview, as well as the reason why the subjects were selected and by whom. The time and place must, if possible, be selected by the interviewees, be free from all types of interference, and allowing for tape recording.

Before beginning the interview subjects must be told about the recording and the confidentiality of the conversation, and sustain a preliminary conversation about the subject of the investigation in order to create an empathy with the interviewer. Personal data must be collected (name, past experience, years of experience teaching, academic awards and interests) prior to starting the interview.

Interviews should be carried out by the researcher.

During the conversation, efforts must be made to provide the interviewee with the impression that the interviewer is really interested in the discourse, and the appropriate techniques, mentioned by Ghiglione & Matalon (1970), (e.g. looking directly towards the subject, rephrasing sentences, "echoing", insisting on particular aspects or statements, providing verbal and non verbal signs of agreement, taking notes, using short silences, "voluntary misunderstandings") must be used according to the person interviewed.

Considerations on the Observation Method

By observing the performance of subjects interviewed it is possible to find matches and mismatches between their performance and conceptions, as well as understanding the kinds of teacher behaviour that students regard as creative. Observing different classes, of different subjects, from science to art, also provides the researcher with a deeper understanding of the teaching universe under consideration.

In the light of this purpose, the opportunity for observation, instead of being determined by the researcher, may also be scheduled by the subject, as there is no intention of providing elements for an assessment of any kind, but just for complementing the interview. The fact that the subject may behave in a way somewhat different from the one normally adopted, in an attempt to cause a good impression upon the observer, is also of minor importance, as the judgement of considering the subject as an example of creative teaching has, in this case, already been made elsewhere.

The method of observation that will be used is the simple *naturalistic method*, in which, as described by Reuchlin (1969), the observer limits himself or herself to watching, without interfering, and to taking occasional notes during the observation period. Before the beginning of each class, the researcher must be introduced to the students, and the reason for his or her presence be explained, as well as the confidential nature of the data collected. The researcher must choose a place which does not interfere with the performance, at the back or at the side of the class, distant from the rest of the students and, if possible, where he or she cannot be seen by them. The observation must last for the whole period in which the performance takes place.

Notes taken can be related to actions by the lecturer, like verbal explanation, showing slides, performing tasks, telling jokes, and acts performed by the students, like asking questions, group discussion, taking initiatives. Special attention must be paid to opportunities for interaction, and to any action considered as deviant from the normal lecture-type method of teaching, as well as to the confirmation of the aspects collected during the interview that can be appreciated in such a short period of time. The time mediating between each interaction must be registered.

The *systematic method* of observation may also be used, and in this case categories of behaviour must be designed within which the actions of lecturers and students can be classified and counted, according to the methodology proposed by Estrela (1990).

The observation record must be anchored to a time scale, within which each of the events pertaining to the listed categories are registered, and described when original or when showing a particular impact on class interest or learning moment.

The observation records must later be compared against the previous interview statements to detect similarities and differences.

CHAPTER TWO

SUBJECTS

This chapter will include a general characterisation of the polytechnic system and population, moving to a description of the Lisbon Polytechnic Institute (IPL), and to every one of its Schools, in order to make possible the understanding of its diversity and particular characteristics that may have a direct implication in the interpretation of the results of this research.

The samples drawn out of each School's population, as well as their correspondent numbers in each of the variables considered, will be described in the last chapter of this part.

The organisation and population of students and staff refer to the academic year of 1997-98, except when otherwise mentioned.

History and General Characterisation of the Polytechnic System

In Portugal, further education is divided into polytechnic and university institutions, either public or private. There are 15 state polytechnic institutions, spread all over the country, each one containing various "schools", or faculties, with courses more or less tailored to local needs; these schools may be located in the same campus, or spread over a certain geographical area, as semi-independent faculties, as in the case of the Lisbon Polytechnic. It has about 43 000 students and 4 000 lecturers.

The idea of the polytechnic started in 1973, when new universities, polytechnic institutes and teacher training colleges ("Escolas Normais Superiores") were created, the last two aimed at technological education and primary school teacher training, respectively. The 1974 revolution delayed the project of the polytechnic, which was recovered only in 1979, when a network of short-term higher education establishments was created, directed to the professional and practical training of technicians, in three-year courses (awarded the "Bacharelato" degree), different from the more research-oriented, theoretical approach of the university, with four to six-year courses (awarding the "Licenciatura" degree), Master's courses, and PhD programmes.

In 1985, the performing arts schools left the National Conservatoire to become part of the IPL, and in 1988, the Institutes of Accountancy and of Engineering were included, forming the present total of seven schools.

The year of 1985 is then the date that can be considered the birth of the IPL (IPL, 1994), coincident with the appointment by the Government of its Principal, together with the Pilot Committees (one chairman and two other members) in each school, which were responsible for a transition period until the appointment of the first elected Principal of the IPL, in 1991. Since 1995, every school of the IPL but the Institute of Accountancy and Administration (ISCAL) has terminated the transition period, and is now run by an elected board of three lecturers (one of them the chair), which carries out routine decision making, and a Scientific Council, responsible for major decisions and for all personnel admissions. There are also the Pedagogic Council and the Council of Representatives, made up of students and staff, having limited powers. Even though many of the schools do not yet have a departmental structure, the intention is that each faculty be organised in Departments and Sections, grouping similar scientific areas.

The Schools maintain small groups of technical and administrative personnel, who take care of all the facilities, while most of the services (e.g. security, cleaning, catering, class administration, audio-visual support and maintenance) are run by contracted companies, the School being just a client. The organisational system is thus very light.

Although with financial and pedagogical autonomy, each School is under the control and budget allocation of the IPL.

Meanwhile, the initial "bacharelato" courses (three years), were transformed into "licenciaturas", by adding one more year, first at the Teacher Training School, while in the other Schools, specialised two-year courses (CESE), were created to make them equivalent to the "licenciaturas". Starting the school year of 1998-99, every School will be able to give the degree of "licenciatura", besides the "bacharelato", in every course; this way, the courses have been augmented by one year, and the CESE will be faded out. These "licenciaturas", designated "two-stage", are still different from the ones awarded by the universities, as they are divided into two parts (a student may change course at the end of the first - the "bacharelato"), while the latter are of one phase only.

Besides the Central Services, and the Social facilities, the IPL is made up of semi-independent, geographically separated Schools of Music, Drama and Cinema, Dance, Teacher Training, Social Communication, Accountancy and Administration, and Engineering, representing, in the academic year of 1997-1998 (beginning in October and ending in July), a growing population of more than 12 000 students (8 000 for the "bacharelato" degree), 900 lecturers, and 300 technical and administrative staff, with more than 200 courses, which cover a wide range of all possible social, administrative, technical and performing arts courses. With the adding of one year to every course, starting in 1998-99, the number of students and faculty will be significantly increased.

As explained in the text related to each School, the IPL brings together a rather heterogeneous group of Schools that grew out of the former professional high schools, except the School of Advanced Media Studies, which has no antecedents. Mainly for this reason, and depending on the Schools considered, average faculty members tend to be older, with a long external professional career, which they manage to continue together with the teaching, but with few academic qualifications, and no formal teacher training (except the faculty members of the Teacher Training School). The majority of those who do nothing outside their teaching are in the process of acquiring higher academic qualifications, mainly because the statutes tend to demand the same requirements as in the university for promotion. Even though the proportion of male students is less than 50%, the population of lecturers has a male majority (70% men). Of the total 912 lecturers, only 34 are PhD (4%), and the majority (65%) has no degree higher than the "licenciatura". As to teaching experience, the average teacher has 14 years experience, and only 94 are beginners (3 or less years).

Lecturers have one class at a time (except the first year, and in some subjects of the second, where classes may be combined), lasting from one and a half to three hours; they do not exceed 12 teaching hours a week, plus tutorial hours up to six, which are not mandatory. There is no system of assessment of staff performance, either scientific or pedagogic, and as lecturers normally work in isolation (a few subjects work in teams), it is common for colleagues not to know each other, in professional teaching terms.

Students enter higher education when they are in their late teens (plus a small number of adults who enter the university under special programmes). According to a text edited by the Board of Rectors of Portuguese Universities (Conselho de Reitores das Universidades Portuguesas, 1996), entrance to public higher education was restricted, in 1996, to fewer than 40% of the total population who go into the university or polytechnic system (public higher education is almost free, while private is very expensive, and normally of lower quality); their entrance depends on a score provided by high school marks and a national examination. Even though it may seem a low percentage, higher education in Portugal has grown from 60,000 to 335,000 students, from 1975 to 1997, which represents a considerable effort.

As reported by Carneiro (1998), 50% of the students enter the polytechnic Schools, as a second to sixth choice (besides Art Schools, which have specific entrance criteria), after having failed to enter similar courses, run by public universities (the degree awarded by a university has higher status in the employment market than that of the polytechnic). Nevertheless the state polytechnic still obtains candidates with higher entrance scores than the majority of private universities and polytechnics. The entrance score has an absolute possible score ranging from 0.0 to 20.0 points, and while students may enter some private universities with less than 8.0 points, courses like architecture and medicine, in state universities, require more than 17.8 points. In the year of 1998, minimum entrance scores in the Schools of the IPL ranged as follows: The Escola Superior de Comunicação Social, 14.0 points; the Escola Superior de Educação de Lisboa, 14.8 points; the Instituto Superior de Contabilidade e Administração, 10.1 points; the Instituto Superior de Engenharia de Lisboa, 8.4 points; the Art Schools have other entrance criterion than high school scores, namely the artistic capabilities.

The typical student of the polytechnic is between 18 and 23 years old, plus a small number of working students, aged between 25 and 35. In the two larger Schools (ISCAL and ISEL), the proportion of this latter kind of students is higher, because there exist evening classes. Nevertheless, only day classes were considered in this study. As previously mentioned, the majority of students are female, except in some of the engineering courses, at the ISEL, and the population is distributed in equal proportion over the three years of the courses, even though the first year tends to have more students (35%).

Although almost every School provides catering services at special prices, and some students may be entitled to scholarships, for accommodation purposes the higher education system does not provide facilities for students, as other countries do. Nevertheless, according to recent declarations of its Principal (Barros, 1998), the IPL intends to build facilities that will offer accommodation and catering services to a considerable amount of students. At present the social services offer hostels to a small percentage of foreign students, as well as to those who come from overseas (e.g. Madeira, Azores, Macau).

The students are represented on the various boards of the Schools, except the Scientific Council, have a delegate per class and an association, whose leader ranks high in each School's hierarchy.

The universe of this study is then the seven Schools of the IPL, and the subjects are their students of the "bacharelato", or of the three first years of the "Licenciatura", together with its tenured faculty. It does not include the students of the fourth year, as the "licenciaturas" were created only in 1998, when part of the data was already collected, nor those of the specialised courses (CESE), as these courses do not have the same rationale as the first ones. Besides, they have very few students, and will be phased out in the near future.

Only tenured faculty (belonging to the permanent staff) or those with a contract renewed every two years, who are entitled to belong to the Schools' boards, will be considered as subjects, and not lecturers who are invited for a specific task or a limited period. Nevertheless, when lecturers outside this group are selected as an example of creative teaching, they will become subjects for interviewing and observation purposes.

The *Escola Superior de Comunicação Social*

The *Escola Superior de Comunicação Social* (ESCS) [School of Advanced Media Studies], is one of the seven schools of the IPL. It was created in 1987, started its first course in 1989-90, and moved into a brand new building, in 1993, equipped with the latest technology in television (one of the best TV studios of the Portuguese educational system), video editing and projection, computing, photography, radio and videographic technology. The two initial three-year courses - Public Relations (PR), and Marketing & Publicity (MP) - were joined by a third - Journalism - in 1996. The School also runs three specialised two-year courses (CESE) - Business Communication, International Marketing, and Consumer Behaviour - designed for graduate students.

In 1997, when the data were collected, the Public Relations course had a total of 331 students, divided between the first (147), second (104) and third years (80); the Marketing course a total of 381 students, divided between the first (159) second (107) and third years (90); the Journalism course 36 students, only in the first year. At the end of the academic year 1997-98, the number of students was nearly 1,000.

The students are organised in classes of between 30 and 40 students each, with daily sessions four days a week from 8 AM to sometimes 8 PM, with a total average of 25 hours per week. The School has developed a tradition of "hands on" training, instead of conventional lectures, and the load put on the students is heavy, and very much directed to working with the media, especially after the first year.

The School has one of the highest entrance score averages of the whole polytechnic, but, as mentioned before, many students enter as a second choice, after having failed to enter similar courses, run by public universities.

All students are living in the Lisbon area; 20% come from other parts of Portugal; and 78% are girls.

Also in 1997, when the data were collected, the total academic staff was 82 lecturers. At the time (May 1997), 65 did not have a degree higher than the "Licenciatura", and 17 had a Master's degree. The majority of those who do nothing outside teaching (younger generation), are in the process of acquiring higher academic qualifications (9 in MA and 5 in PhD programmes). The percentage of women is slightly higher than men (53% women), and the staff have an average of less than 15 years of teaching experience, and more than 50% are under forty years of age, while the "founders" (around 25%), who rank higher in the leadership positions, are in their fifties.

Although grouped in offices of four persons each, the staff normally work alone (a few subjects work in teams), and general meetings are rare, so it is difficult for anyone but the management team to know each other, in professional terms.

The staff are organised in three "vertical" Departments (Public Relations, Marketing & Publicity, and Journalism) and 13 "horizontal" sections, grouping similar scientific areas, so that each lecturer belongs to both a Department and a Section.

A small group of 31 technical and administrative staff take care of the entire School facilities, where most of the services are run by contracted companies, the School being just a client.

The *Escola Superior de Educação de Lisboa*

The *Escola Superior de Educação de Lisboa* (ESEL) [Teacher Training College] is another School of the IPL. This School is a successor to the former teacher training colleges, dating from 1862, for primary school teachers. Although its present location has remained the same since 1919, its 19th Century building was totally reconstructed in 1990. The present organisation dates from 1993.

The ESEL is the only School of the IPL which already had four-year courses ("Licenciatura") before 1997-98, in a total of six: Portuguese-French, Portuguese-English, Mathematics-Sciences, Music Education, and Visual and Technological Education. One other three-year course - Pre-School Education - is on the way to becoming a "Licenciatura". There are still eight specialised two-year courses (CESE), which are to end in the near future, and these, together with the fourth year of the "Licenciatura", will not be considered in this study.

Six hundred and forty students are divided among the various courses: Pre-School Education (116), Portuguese-French (117), Portuguese-English

(112), Mathematics-Sciences (139), Music Education (88), and Visual and Technological Education (68); the various CESE gather 535 students.

The majority of the students are living in the Lisbon area, even though less than 20% come from other parts of Portugal. Eighty-five percent were girls at the time of first data collection (1997-98).

A total of 72 lecturers belong to the academic staff. The majority (49) have a Master's degree, ten of them are PhDs, eleven are "Licenciados", and only two have the degree of "Bacharelato". The percentage of female lecturers is higher than male (32% male), and the staff have an average of more than 20 years' teaching experience (10 to 15 in higher education); the majority are in their forties.

There is no system of assessment of staff performance, but unlike the lecturers from the other Schools of the IPL, almost every lecturer has had some form of teacher training.

Grouped in offices of several persons each, the staff work normally in teams, and even though general meetings are rare, everybody knows one another, which is also a contrast with the other schools.

The staff are organised in three Departments - Pre-School Education, Basic Education, and Educational Specialisation - and 14 scientific areas - Portuguese Language, Foreign Romance Languages, Germanic Languages, Social Sciences, Natural Sciences, Mathematical Education, Musical Education, Visual Arts and Multimedia, Physical Education, Drama, Sociology of Education, Pedagogy, Psychology, Special Educational Needs.

A group of 42 technical and administrative staff personnel take care of the entire School facilities.

The *Instituto Superior de Contabilidade e Administração*

The *Instituto Superior de Contabilidade e Administração* (ISCAL) [Institute of Accountancy and Administration], is another one of the seven Schools of the IPL. This School was founded in 1869, under the name of Instituto Industrial e Comercial de Lisboa [Lisbon Institute of Industry and Commerce], and granted higher education level in 1970, under its present designation. In 1988 it was officially included in the Lisbon Polytechnic.

The only three-year course ("Bachelerato" degree) is the Course of Administration and Accountancy , and the Institute also runs five specialised two-year courses (CESE) - Public Administration, Auditing, Fiscal Control, Financial Institutions, Administration and Financial Control - designed for graduate students. These latter courses have very few students, comparatively (400).

The Course of Administration and Accountancy has a total of 2,306 students, divided among the first (730), second (796) and third years (780). The students are organised in two shifts (8 am to 1 pm and 1 pm to 6 pm), and a third shift of working or graduate students after 6.30 pm. The classes range from 40 to 70 students each.

The School has developed a tradition of high reliability, and is considered the best of the country in the teaching of accountancy and is much sought after by candidates.

The students are represented by their association; they come from every part of the country, and not only from the Lisbon area, and about 65% of them are girls.

A total of 213 lecturers belong to the academic staff, but fewer than half are part time (164 are full time). Because of various problems that will be solved in the near future, only 11 lecturers belong to the Institute's Scientific Council, and because of that all legal boards have been suspended and the Government has appointed a Pilot Committee that is running the Institute until the situation is solved and the lecturers are formally admitted in the institution.

There are no offices for the lecturers, nor are they organised in departments or sections, but only by subjects, and so they are supposed to prepare classes elsewhere. The majority have no degree higher than "Licenciatura" (19 - Master's; 194 - "Licenciatura"; 1 - "Bacharelato"), and normally they have long external professional experience, which they manage to carry on together with the teaching. The majority of those who are exclusively teachers (younger generation) are in the process of acquiring higher academic qualifications. The percentage of female teachers is lower than male (75% male), and the staff have an average of less than 15 but more than 7 years of teaching experience, with an average age of 50.

A group of 46 administrative staff take care of the entire School facilities, within a seven-floor building similar to a normal office building, with very little equipment other than computers.

The *Instituto Superior de Engenharia de Lisboa*

The *Instituto Superior de Engenharia de Lisboa* (ISEL) [Lisbon Institute of Engineering], is another one of the seven schools of the IPL.

This School was once the hundred year-old *Instituto Industrial de Lisboa* [Lisbon Industrial Institute], which became, in 1974, a higher education institution, under its present designation, and in 1988 was officially included in the Lisbon Polytechnic. There are five three-year engineering courses ("Bacharelato" degree): Civil, Chemical, Electronics and Communications, Mechanics, and Electrical; and eight specialised two-year courses, designed for graduate students. These latter courses, with a total of 1,309 students, will end as soon as the present three-year courses are transformed into "licenciaturas", and so, as with the other schools, they will not be considered in this study.

The "bacharelato" courses have a total of 3,944 students, divided between the first, second, and third years, as in the chart below, and 351 more students in the 4th and 5th years, with a total of 4,295. All courses are run in two shifts: one till 6 pm, and the other till 11 pm, in a proportion that varies with the course, but that corresponds to two thirds of students in the first shift to one third in the second.

The School has developed a solid tradition, and its courses of electronics and electricity are highly considered. The students are represented by their Association and, because of their number, also in Pedagogic Committees (one in each Department).

Table 2. Number of students per course and year, in 1997-98 (4th and 5th years missing)

ENGINEERING COURSES	1st YEAR	2nd YEAR	3rd YEAR	TOTAL
Civil	256	350	422	1028
Chemical	171	224	178	573
Communications	280	264	223	767
Mechanical	310	221	404	935
Electrical	194	272	177	641
TOTAL	1211	1331	1404	3944
Graduate Courses	607	702		1309

The students come from every part of the country and only about 10% in electronics, mechanics and electrical engineering are girls, but not in civil, and in chemical engineering, where the percentage rises to 30% and 70%, respectively. Their average age (25) is higher than in other faculties, especially in electronics and communications, because many of them already have a job when they enrol, especially those on the night shift, whose average age is near 30.

A total of 431 lecturers belong to the academic staff, organised in five Departments, corresponding to the main courses. Eighteen of them have a PhD, 99 a Masters', 304 the "Licenciatura", and only 10 have the "Bacharelato". As in other cases, they have a long external professional experience, which they manage to continue together with the teaching. Seventy five per cent are exclusively teachers, while the remaining twenty five per cent are part timers. The percentage of women is lower than men (80% male), and the staff have an average of less than 15 but more than 7 years of teaching experience, with an average age of 45.

A group of 117 administrative and technical staff take care of the entire School facilities, within several buildings in a considerable sized area.

The *Escola Superior de Dança*

The *Escola Superior de Dança* (ESD) [Dance School], is another of the seven Schools of the IPL.

As with the other performing arts schools, the ESD was part of the National Conservatoire, and was granted higher education status, under its present name, in 1983, starting its first course in 1986. Having moved to its present location in 1993, the School still runs a three-year Course in Dance ("bacharelato" degree), with 94 students between two specialities - Dance Teaching and Performance, divided between the first (50), second (21) and third (23) years, and a specialised two-year course (CESE) of Dance Teaching. As in the other cases, this latter course will not be considered in this study, for sampling purposes.

The students come from every part of the country, are organised in their own Association, and about 95% of them are girls.

A total of 18 lecturers belong to the academic staff, and all but one belong to the School's Scientific Council. There are offices for the lecturers, but they are not organised in Departments or Sections.

Due to the special nature of the faculty, the majority have no degree higher than "Bacharelato", or equivalent (3 - Masters' degree; 3 - "Licenciatura"; 12 - "Bacharelato" or equivalent), and normally they have long external professional experience, which they find hard to continue, as physical capacity severely limits their activity with age. The percentage of female teachers is slightly lower than male (45% female), and the staff have an average of less than 10 years of teaching experience, with an average age of 40.

A group of 13 administrative staff take care of the entire School facilities, within a large three-floor building with every kind of facility necessary to this type of activity, which projected constructions are going to improve.

The *Escola Superior de Teatro e Cinema*

The *Escola Superior de Teatro e Cinema* (ESTC) [Theatre and Cinema School], is another one of the seven schools of the IPL. Together with the other art schools, the ESTC was part of the National Conservatoire, and was granted higher education status, included in the Lisbon Polytechnic, under its present name and location, in 1983, with its first course in 1986. Its present status and organisation dates from 1995.

Even though only three courses were running in 1997-98, there are five three-year courses (degree of "Bacharelato"): Actor Training; Theatre Studies; Stage Design; Production; and Cinema (options in Image, Sound, Editing and Production). The School also runs one specialised two-year course (CESE) of Theatre and Education, with 29 students, designed for graduate students. As with the other cases, this course will not be considered in this study.

The School has 232 students, divided among the CESE (29 students) and the three courses: the Actor Training Course with 81; the Stage Design Course with 52; and the Cinema Course with 70 students. These courses are divided between the first (70), second (86), and third years (47).

The students come from every part of the country and about 75% of them are girls, in the Theatre and Stage Design courses, and 25% in the Cinema course. An interesting fact is that about 5% of the students already have other degrees, especially "licenciaturas".

Even though in the same building, theatre and cinema appear as almost two entirely different schools, with a total of 43 lecturers. There are no offices for the lecturers, and in the near future they will be organised in two Departments - Theatre and Cinema. Even though there are four PhDs, the majority has no degree higher than "Bacharelato" (4 - PhD; 4 - Masters'; 10 - "Licenciatura"; 25 - "Bacharelato" or equivalent), and normally they have long external professional experience, which they must carry on together with the teaching, in order not to get out of practice, at least those who are actors. The percentage of female teachers is lower than male (65% male in theatre, and 90% in cinema), and the staff have an average of less than 15 but more than 7 years of teaching experience, with an average age of 50 years in theatre, and 40 years in cinema.

A group of 14 administrative staff take care of the entire School facilities, within a very old three-floor building. The School has moved to a brand new building, with proper facilities and equipment, and classes began in October 1998.

The *Escola Superior de Música de Lisboa*

The *Escola Superior de Música de Lisboa* (ESML) [Lisbon Music College], is the last of this list of the seven Schools of the IPL. The ESML was founded in 1983, as a result of the reorganisation of the National Conservatoire, and in 1985 became part of the IPL; in 1986, the degree courses, as well as other cultural activities, started.

From 1983 until 1995 the School was run by a Pilot Committee, and with the approval of its statutes, the preliminary period came to an end and the ESML gained administrative and financial autonomy. At present, the ESML is run by a Director, instead of a Principal, as in the other schools, but also elected by the School's Assembly of Representatives. Also, as in the other Schools, the ESML boards include the Scientific Council and the Pedagogical Council, while the Consultative Council is specific to this School. There are eight Departments: Strings, Wind Instruments, Percussion, Keyboard Instruments, Singing, Advanced Gregorian Studies, Chamber Music, and Composition.

Although still in a very old four-storey building, till the year of 2001, the ESML has a Library, a Centre for Texts and Reproduction, an External Relations Office and an Electroacoustic Studio, as well as other supporting services. At the moment, the ESML has a Choir, a String Orchestra, a String Quartet and a Wind Quintet among other groups.

At present, the school administers courses of three years that confer the degree of "bacharelato", with a complementary course (CESE) of a year and a half, that confers the degree of "Licenciatura"; as from 1998, there will be only "Licenciatura" courses.

The 23 "bacharelato" courses are: violin, viola, violoncello, double bass, guitar, flute, recorder, oboe, clarinet, saxophone, bassoon, horn, trumpet, trombone, percussion, piano, harpsichord, organ, singing, composition, music education, choral conducting and Gregorian chant. A total of 169 students are divided among these courses, in a proportion of 80 in the first year, 46 in second, and 43 in the third.

The students come from every part of the country and about 47% of them are girls.

A total of 53 lecturers belong to the academic staff, and 20% are of foreign origin. There are just a few offices for the lecturers, and so they are supposed to prepare classes elsewhere. The majority have no degree higher than "Bacharelato" (2 - PhD, 2 - Master's; 8 - "Licenciatura"; 39 - "bacharelato" or equivalent), and normally they have long professional experience, which they must manage to continue together with the teaching. Six members of the faculty are in the process of acquiring higher academic qualifications. The percentage of female staff is lower than male (77% male), and the academic staff have, on average, more than 15 years of teaching experience, with only 10 having less than 10 years experience. The average age of the lecturers is 45.

A group of 10 administrative staff take care of the entire School facilities.

CHAPTER THREE

THE RESEARCH INSTRUMENT

As stated in the preceding part, the need to build an instrument of measurement, to assess students' and lecturers' perceptions of creative teaching, arose due to the fact that already known instruments deal either with personality measures of a creative person, or with behaviours which characterise creative teaching, from a theoretical point of view.

It was not possible to find a creative teaching questionnaire, of behaviours or interpersonal characteristics, which had been constructed in an interpretative way, through criteria defined by the respondent, and not normatively, through pre-set criteria of the literature, as Kutnick & Jules (1993) advise, so that its content could be matched against personal concepts, and not to theoretical constructs that revealed themselves very weak, during literature discussion.

From the beginning of the investigation it was made clear that the subjects, especially students, had great difficulty in remembering and evaluating their previous, or even present, teachers in behaviours like 'Applies problem solving strategies', 'Enables students to manipulate knowledge', 'Uses divergent thinking approaches' or 'Uses different teaching methods'. The use of students' descriptions, or metaphors, and not those conceived by experts, as far as teachers' behaviours are concerned, increases the meaning of their answers, that is to say, its construct validity.

This chapter is then devoted to explaining every step and analysis made in order to transform more than one thousand constructs, elicited at the beginning, in a reliable and valid questionnaire that subjects could easily and rapidly fill in.

Initial Construction and the First Draft

As this instrument had to include all sorts of possible teaching behaviours, perceived from different points of view (e.g. as perceived by students, by other teachers, self-perception, by teachers as students, by students as teachers), Kelly's procedure, as stated earlier, when considering the personal construct theory (Stewart & Stewart, 1981; Bannister & Mair, 1968), was used to build the questionnaire. As there was also the need to compare the subjects' concept of "creative teaching", "non-creative teaching", "self perception of teaching", and "self perception of ideal teaching", the final instrument had to include the ratings of each considered behaviour (construct) against each of these elements.

First, a pool of behaviour descriptions, related to the "creative teaching" concept, were obtained. These descriptions were written by about one hundred students in higher education, who were asked first to write, on small pieces of paper, according to specific instructions (Appendix A), the names of eight teachers they remembered (3 they considered creative, 3 non creative, and 2 sometimes creative), plus a ninth (himself/herself as he/she would be as a teacher); then they were asked to make various combinations of two of these, who had exhibited a similar teaching behaviour, considered creative, and a third, who acted in an opposite way, or at least very differently, and state these two opposing behaviours. Each subject was able to elicit an average of ten opposed behavioural descriptions, and the whole sample produced about a thousand constructs.

Ten lecturers were also asked to do the same (3 considered creative, 3 non-creative, 2 sometimes creative, and himself/herself, as a lecturer), according to similar instructions (Appendix A), thinking in different roles: as practising teachers, as when they were students, as they thought their present colleagues would think, and finally trying to think as the actual students would do. This way an extensive series of more than 200 additional constructs, seen through various sources of perception, were provided by the academic staff.

The subjects were further asked to rate the teacher they consider most creative, on a five-point scale, in each one of the constructs they had elicited, to compare each one's idea of "creative teacher" against each behaviour considered. It was then decided to include, in the questionnaire, an item to evaluate each subject's perception of the ideal teacher, along the creative/non-creative continuum, as a control variable, so that the ratings given to each particular behaviour could be compared with the general concept of effectiveness that they had about creative teaching.

Within the four general categories considered (1 - *scientific and pedagogic*, 2 - *ethics and relationship*, 3 - *student evaluation*, and 4 - *personal characteristics*), constructs were listed and similarities were eliminated, as well as poor descriptions or isolated adjectives (only sentences with a verb were acceptable). Then pairs of descriptors were eliminated, or rephrased, by group consensus, leaving a final list (Appendix B) of 56 opposite constructs (112 behavioural descriptions), related to creative/non-creative teaching behaviours, that were compared against theoretical descriptions to see if any important behaviour had been left out. Between each pair of constructs, four columns were added, each one representing the elements of 'The creative teacher', 'The non creative teacher', 'As I think I would be as a teacher', (students' questionnaire) or 'As I think I am as a teacher' (lecturers' questionnaire), and 'How I would like to be as a teacher'.

As all "creative" constructs were in the same column, a second version was prepared, mixing both kinds of constructs (creative, non-creative) into the same column, so as to obtain direct and reverse response items mixed together, thus reducing the probability of social desirability errors occurring. The last item (distinguishing between social science and exact science lecturers) was eliminated, reducing the number of items to 55, and the length of the questionnaire to two pages, instead of three. Two forms: one for lecturers, and another for students, were designed.

Second Draft

This second version of the questionnaire was rated by a sample of 41 students and 12 lecturers of the target population. In each column, the subjects were asked to rate each pair (A and B) on a five-point scale, from 1 - 'Strongly agree with A' to 5 - 'Strongly agree with B', during individual or group administrations, which last for about one and a half hours each. Reverse items were recoded so the final mean of each pair of constructs (A and B) could be interpreted in terms of 'creative teacher' (closer to 1) or 'non-creative teacher' (closer to 5).

A descriptive analysis of each pair of constructs (items), and an analysis of variance (T-Test) between ratings given by students and by lecturers, were performed, in order to decide whether to maintain or to eliminate each item from the questionnaire, as seen in Table 3.

A decision to maintain an item would be favourable to the retention of that item if the following criteria was met:

- Being perceived by the subjects as "direct" or "reverse", according to the intention of the questionnaire, as far as creative/non-creative teaching behaviours were concerned (that is, for creative teaching, less than 3, if the item was direct, or greater than, if not. For non-creative teaching, the opposite);
- a range of ratings between extreme scores of 1 and 5, and variance close to or greater than 1.00 (discriminant power);

Table 3. Items perceived as direct or reverse (Dir./Rev.), according to the intention of the questionnaire; as having a significant correlation (*) among elements; as distinguishing between lecturers' and students' ratings, at least at p<.05 (Diff.); as having a range between 1 and 5, in the 'creative teacher' ratings (Range); as having a mean different from 3.00 and variance close to 1.00 (Xvar), in the 'creative teacher' element; decision (Dec.) made to maintain or to eliminate each item (pair of constructs) from the questionnaire.

		CORRELATION (*)							
Item	Rev/Dir	ctwld	nctwd	ctwlk	nctwl	Diff.	Range	XVar	Dec.
1	x						x	x	Eliminate
1^{a}	x	x		x			x	x	Maintain
1c	x			x			x	x	Maintain
1e	x			x			x		Eliminate
1f	x						x	x	Maintain
1h	x						x	x	Maintain
1l				x	x		x		Eliminate
1l				x	x	x			Maintain
1m		x					x	x	Maintain
1n	x	x		x			x	x	Maintain
1p	x			x					Maintain
1r	x		x	x			x	x	Maintain
1s		x		x		x	x	x	Maintain
1t		x		x			x		Maintain
1u						x	x	x	Maintain
1v							x		Eliminate
1x	x	x		x			x	x	Maintain
1y	x	x		x			x	x	Maintain
1z							x	x	Maintain
1^{a}a					x		x	x	Maintain
1^{a}c	x			x			x	x	Maintain
1^{a}d		x		x			x	x	Maintain
1^{a}e	x	x		x					Eliminate
1^{a}f		x		x			x	x	Maintain
1^{a}h		x		x	x		x		Maintain
1^{a}i	x	x			x	x	x	x	Maintain
1^{a}j		x				x	x		Eliminate
2							x	x	Maintain
2^{a}	x	x					x	x	Maintain
2b	x					x	x	x	Maintain
2c				x	x		x		Eliminate
2e		x		x	x	x	x	x	Maintain
2f	x						x	x	Maintain
2g		x		x		x		x	Maintain
2h	x	x		x			x	x	Maintain
2l	x			x		x	x	x	Maintain
2j	x					x		x	Maintain
2m	x			x			x	x	Eliminate
2n		x		x			x		Maintain
2^{o}							x	x	Maintain
3^{a}	x					x	x	x	Maintain
3b	x	x		x			x	x	Maintain
3c	x	x					x	x	Maintain
3d		x				x	x	x	Maintain
3e		x		x	x		x	x	Maintain
3f		x		x		x	x	x	Maintain
4^{a}	x			x	x		x	x	Eliminate
4b			x	x			x		Eliminate
4c	x						x		Eliminate
4d	x						x	x	Maintain
4e		x	x	x			x	x	Eliminate
4f	x	x		x			x		Maintain
4g	x			x			x		Eliminate
4h						x	x	x	Eliminate

(*) Correlations at p<.01 level between ratings: **ctwld** - 'creative teaching' and 'as I would be'; **nctwd** - 'non-creative teaching' and 'as I would be'; **ctwlk** - 'creative teaching' and 'as I would like to be'; **nctwl** - 'non-creative teaching' and 'as I would like to be'.

- statistically significant correlation between 'creative teacher' and 'as I am / I think I would be / 'I would like to be, as a teacher';
- difference (p<.05, at least) between lecturers' and students' ratings.

These decision making elements were analysed for each item, resulting in the elimination of 15 pairs of constructs, and a instrument with 40 opposing constructs. A third version (Appendix C) was prepared: the pairs of constructs were reduced to 40, and the independent variables selected (school, background, subject taught and years of experience, for lecturers; school, course and course year, for students) were added.

Third Draft

The next step was carried out after careful consideration and discussion of the difficulty in seeing many of the items as true opposites, and because even the constructs of "creative teacher" and "non-creative teacher" did not mean opposed behaviours. The doubt arose if the ratings would not lead to different conclusions, if the subjects would not have to choose between the two constructs, as on a semantic differential scale. It was then decided to place all of the constructs in only one column, maintaining the rest as it was. The result was a questionnaire containing 80 single items, instead of 40 pairs, in which the subject was asked to rate each construct, in each element (column), in a 1 (Strongly agree) to 5 (Strongly disagree) Likert-type scale, as seen in Appendix D. The element description, of the first two columns, was changed from "Creative teacher" and "Non-creative teacher" to "More creative teacher" and "Less creative teacher", respectively, to avoid real impossibilities (no one is fully creative nor totally uncreative).

As the resulting questionnaire was now too long (a total of 320 ratings per subject was needed), and response accuracy would probably suffer, when this version was administered to various groups of subjects (only students) in higher education, in a total of 55, they were asked to fill in only the first two elements ("More creative teacher" and "Less creative teacher"). Another group of 25 students volunteered to complete the whole questionnaire, which took them about 3 hours, bringing the total of subjects to 80, in the first two constructs.

To evaluate each item's mean, standard deviation, contribution to the internal consistency of the questionnaire and power to distinguish between both elements (more and less creative teachers), a descriptive analysis was performed, followed by an analysis of variance. Another analysis of variance was performed to evaluate the similarity of results between items that were opposed in previous versions of the questionnaire, as shown in Tables 4 and 5.

As the intention was to change to a single description items, instead of a pair of opposite descriptions, it was decided to keep the one in each pair, that was closer to the criteria already established. From the remaining 40 items further eliminations were made, according to the same criteria, and provided no essential information would be lost, thus reducing the questionnaire to what may be considered a final version of 29 constructs (items), and four elements (columns), as seen in Appendix E (the 30th item [number 13] - 'Fits in my ideal of a lecturer' - was kept for control purposes).

Table 4. Descriptive statistics for each of the first 40 items of the questionnaire: item number (Item No); reverse items in the 'More creative' element (Reverse - R); mean (X); standard deviation (σ); (b) different ($p<.05$) scores (X) between each item and its previous opponent, in the 'More creative' element; Cronbach's Alpha if the item is deleted (α); decision either to maintain or eliminate the item from the questionnaire. (N=80).

	More creative teacher				Less creative teacher				
Item No	Reverse	X	σ	α	X	σ	α	b	Decision
1	R	2.36	1.22	.88	4.20	.95	.93		Maintain
2	R	2.13	1.00	.88	3.33	1.14	.93		Maintain
3	R	3.04	1.50	.88	4.01	1.01	.93		Eliminate
4		1.59	.82	.88	3.84	1.13	.93	X	Eliminate
5		3.29(*)	1.31	.88	3.39	1.08	.93		Eliminate
6		1.63	.83	.88	2.41	1.03	.93		Maintain
7		2.73	1.18	.89	1.75	.82	.93		Eliminate
8	R	3.90(*)	1.00	.89	3.80	.92	.93	X	Eliminate
9		2.66	.89	.88	3.13	.75	.93	X	Maintain
10	R	2.43(*)	1.09	.88	2.64	1.02	.93		Eliminate
11	R	2.23	1.27	.88	4.09	.92	.93		Eliminate
12	R	1.90	.96	.88	3.70	1.14	.93		Eliminate
13		1.53	.711	.88	3.61	1.01	.93		Maintain
14		1.95	1.07	.88	3.66	.97	.93	X	Eliminate
15		1.79	.77	.88	3.79	.94	.93		Maintain
16	R	2.08	1.05	.88	3.93	1.06	.93		Eliminate
17	R	1.53	.87	.88	3.91	1.02	.93	X	Maintain
18		1.36	.58	.88	3.01	1.16	.93	X	Eliminate
19	R	1.66	.94	.88	3.94	1.06	.93		Maintain
20		1.51	.76	.88	3.64	1.08	.93		Maintain
21		2.26(*)	1.00	.88	2.55	.90	.93	X	Eliminate
22		1.85	.96	.88	3.78	.93	.93	X	Eliminate
23	R	1.87	1.16	.89	2.71	1.25	.93		Eliminate
24	R	1.59	.84	.88	3.05	1.17	.93	X	Eliminate
25		2.01	1.02	.88	3.21	1.06	.93	X	Maintain
26	R	1.59	.79	.88	3.13	1.24	.93		Eliminate
27		2.74	1.12	.88	3.34	1.03	.93		Maintain
28	R	1.75	1.07	.88	2.83	1.25	.93		Eliminate
29	R	1.86	1.00	.88	2.96	1.30	.93	X	Eliminate
30	R	2.61	1.20	.88	3.51	1.11	.93		Maintain
31		1.74	.87	.88	4.21	.91	.93		Maintain
32		1.80	.80	.88	2.78	1.12	.93	X	Maintain
33		1.60	.67	.88	2.94	1.14	.93		Eliminate
34	R	2.11	1.19	.88	2.54	1.25	.93	X	Eliminate
35	R	2.66(*)	1.08	.88	2.97	1.10	.93		Eliminate
36		2.68	1.22	.88	3.13	1.06	.93	X	Maintain
37		1.72	.99	.88	3.64	1.04	.93		Maintain
38		3.47(*)	1.19	.88	3.82	1.02	.93		Eliminate
39	R	1.90	1.02	.88	3.39	1.08	.93	X	Eliminate
40	R	1.75	1.03	.88	3.23	1.26	.93		Maintain

(*) Items that **do not** score differently between 'more' and 'less' creative teachers, at least at the $p<.05$ level.

Table 5. Descriptive statistics for each of the second half (40 items) of the questionnaire: item number (Item No); reverse items in the 'More creative' element (R); mean (X); standard deviation (σ); Cronbach's Alpha if the item is deleted (α); decision either to maintain or eliminate the item from the questionnaire. (N=80).

	More creative teacher				Less creative teacher			
Item No	Reverse	X	σ	α	X	σ	α	Decision
1		2.74	1.24	.88	3.73	.91	.93	Eliminate
2		1.49	.60	.88	3.31	1.24	.93	Eliminate
3		1.75	.87	.89	3.35	1.06	.93	Maintain
4	R	1.77	.91	.88	3.74	1.22	.93	Maintain
5	R	1.58	.85	.88	3.90	1.09	.93	Maintain
6	R	2.17	.97	.88	3.19	1.25	.93	Eliminate
7	R	3.10	1.12	.88	2.43	1.09	.93	Maintain
8		3.79	.89	.89	3.44	1.12	.93	Eliminate
9	R	2.44	.98	.88	2.95	1.06	.93	Eliminate
10		1.86	.82	.88	2.94	1.04	.93	Maintain
11		1.79	.88	.88	3.36	1.05	.93	Maintain
12		1.56	.66	.88	3.22	1.01	.93	Maintain
13	R	2.39	1.00	.88	3.21	1.13	.93	Eliminate
14	R	2.10	.99	.88	3.75	1.00	.93	Maintain
15	R	2.62(*)	1.19	.88	3.03	1.09	.93	Eliminate
16		1.74	.70	.88	3.27	.97	.93	Maintain
17		1.88	.99	.88	2.91	.95	.93	Eliminate
18	R	1.48	.68	.88	3.13	1.26	.93	Maintain
19		2.79	.94	.88	3.39	.89	.93	Eliminate
20	R	1.84	.81	.88	3.01	1.18	.93	Eliminate
21	R	2.09	.88	.88	2.69	1.08	.93	Maintain
22	R	1.62	.74	.88	3.40	1.12	.93	Maintain
23		1.79	.83	.88	2.91	1.07	.93	Maintain
24		1.74	.77	.88	3.19	1.03	.93	Maintain
25	R	1.97	.84	.88	3.49	1.08	.93	Eliminate
26		2.10	.85	.88	3.30	1.01	.93	Maintain
27	R	1.90	.98	.88	2.56	1.20	.93	Eliminate
28		2.64	1.04	.88	3.74	.92	.93	Maintain
29		1.96	.87	.88	3.52	.98	.93	Maintain
30		2.01	.95	.88	3.38	1.04	.93	Eliminate
31	R	2.13	1.25	.88	3.53	1.35	.93	Eliminate
32	R	1.84	.92	.88	2.78	1.24	.93	Eliminate
33	R	1.96(*)	1.09	.88	1.84	1.06	.93	Eliminate
34		2.31(*)	.95	.88	2.64	1.02	.93	Eliminate
35	R	2.34(*)	1.05	.88	2.17	.91	.93	Eliminate
36	R	2.57(*)	1.08	.88	2.99	.98	.93	Eliminate
37	R	2.06	.99	.88	3.37	1.18	.93	Eliminate
38		2.84	1.21	.89	3.55	1.08	.93	Maintain
39		1.92	.98	.88	3.55	1.01	.93	Maintain
40		1.55	.61	.88	3.49	.88	.93	Eliminate

(*) Items that **do not** score differently between 'more' and 'less' creative teachers, at least at the $p<.05$ level.

Final Draft

Tables 6 to 9 resume the general characteristics of the final instrument. As to reliability, Table 6 indicates the Cronbach's Alpha values for each item (if the item was deleted), and global, for each element. As may be observed, the internal consistency is strong in the first two elements (.82 and .86), and moderate in the following two (.70 and .66), even though, in this last case, we cannot give it too much credit due to the reduced sample size (n=25). It is also credible that it would be difficult to find a pattern of what each subject thinks the real or ideal image of a teacher must be, which may help to explain its internal low consistency values. Items 15, 20 and 30 seem to be rather outside the whole construct of creative/non-creative teacher.

Item 13 ('Fits my idea of the ideal teacher'), a control measure, seems to fit the pattern that one has about the "creative" and "less creative" teacher, as shown in its correlation values in Table 7. This fact was explored in an analysis of variance, followed by a post hoc comparison between each group (Scheffe's test), where the possible values of this item (1 to 5) were compared against each element's mean total (Table 7), resulting in a significant difference only between subjects who scored 1 (totally agree) or 2 (agree), in the 'More creative' element. The fact that almost every subject accepted the "creative" teacher, as the ideal, and "rejected" the "less creative" was already expected, but it is interesting to note that the distinction between those who score 1 and 2, on item 13, corresponds to a different evaluation of the "creative", while it does not with the "less creative": subjects seem to have a better idea of what they reject, than of what they prefer, as ratings to creative teaching seem to be dependent upon the individual's preference for that kind of teaching, while the fact that the individual likes or dislikes uncreative teaching seems independent of how it is described.

Table 6. Cronbach's Alpha values, of each item (if the item was deleted), and the mean total, in each of the four elements.

Item number and content	More Creative (n=80)	Less creative (n=80)	How I think I will be (n=25)	How I would like to be (n=25)
1 Follows the programme in a linear a way	.82	.86	.69	.64
2 Teaching is mainly a source of income	.82	.86	.71	.64
3 Knows what he or she is talking about	.82	.86	.70	.66
4 The students receive high marks	.82	.87	.68	.63
5 Discusses controversial subjects with students	.81	.86	.72	.67
6 Creates a playground where everything can be learned	.82	.86	.68	.63
7 Unable to teach a lesson he or she has not prepared	.82	.86	.69	.65
8 Strictly follows orders, adding nothing of himself or herself	.81	.86	.68	.64
9 Makes students like the subject through interesting activities	.81	.86	.70	.67
10 Takes students to visit places	.82	.86	.67	.65
11 Welcomes every student, even latecomers	.82	.86	.70	.64
12 Strong lecturer-student distinction	.83	.86	.70	.67
13 Fits in with my ideal of a lecturer	.82	.86		
14 Gives support to weaker students	.82	.86	.74	.69
15 Immune to 'sucking up'	.83	.87	.69	.65
16 Is not limited to tests as a way of assessment.	.82	.86	.69	.65
17 Does not have a sense of humour	.82	.86	.68	.65
18 Creates analogies to explain the subject matter	.81	.86	.68	.66
19 Teaches boring lessons	.81	.86	.69	.65
20 Loses himself or herself with subjects outside the lesson objective	.84	.87	.67	.65
21 The subject matter helps students to solve problems	.82	.86	.69	.65
22 Promotes team work	.81	.86	.67	.63
23 Very observant of the surrounding world	.81	.86	.71	.65
24 Limits himself or herself to reality	.82	.86	.68	.64
25 Encourages work different to what has previously been done	.81	.86	.71	.66
26 Never gives practical examples	.81	.86	.69	.66
27 Distant from students	.82	.85	.69	.65
28 Creates a friendly relationship with the students	.81	.85	.69	.65
29 Likes students who ask difficult questions	.82	.86	.68	.65
30 Identifies the students with friendly nicknames	.83	.87	.71	.70
Mean total	.82	.86	.70	.66

Table 7. Comparison of the mean totals in each element, by each possible value of item 13 (Val), and its significance (Sig.).

Val	n	Mean of 'More creative'	Val	Mean of 'Less creative'
1	37	1.78*	5	3.44
2	27	2.16*	4	3.34
3	10	2.11	3	3.13
4	2	2.29	2	3.29
5	1	1.75	1	3.97
Sig.	77	.00	77	.28

(*) Both differ at p<.00 level

The Table 8 compares the mean of each of the two groups of elements against the other. Opposition may be seen in every item but number 20, in the first two elements, which together with items 4 and 15, seem to bring some confusion to the whole construct. Nevertheless we think these items should be left as part of the questionnaire, for the moment and, as the research progresses, deleted if convenient. Regarding the last two constructs, we may consider the differences found as logical, because the subjects think they will be less creative than they wish, especially in the task aspects (e.g. items 3, 7, and 8). In ethical 2, like item 2, and relationship (e.g. items 10 and 11) aspects, they probably expect to find fewer difficulties, as shown in the value differences.

Table 9 compares the mean of each possible difference that may be of interest for the research. The fact that every considered difference is significant requires that a subset of measures, more precise than the mean score, be created, so that patterns of deviation and similarity may be established. This could easily be done through factor analysis, if there were enough cases. Unfortunately this did not happen, and the factors which resulted from various attempts were hard to understand, revealing some probable difficulties as far as the instrument's construct validity was concerned. The research, and consequently increased numbers of subjects, must see that this problem is solved, or at least reduced. A solution may also be to devise a separation like the one mentioned during literature review (task and relationship), and evaluating the fit of these factors with the population in hand, through a confirmatory factor analysis (Long, 1983).

Table 8. Mean and standard deviation of each item and total, in the first two elements, with the indication of statistically significative differences, at the p<.01 level (*) or p<.05 level (**), between each pair ("more-less creative", and "would be-would like to be as a teacher").

Item number	More Creative (n=80)		Less creative (n=80)		How I think I would be (n=25)		How I would like to be (n=25)	
	X (*)	σ	X	σ	X	σ	X	σ
1	2.36*	1.22	4.20	.95	2.77	1.07	2.69	1.41
2	2.13*	1.00	3.33	1.14	1.88	.95	1.65	1.06
3	1.63*	.83	2.41	1.03	1.77*	.71	1.12	.43
4	2.66*	.89	3.13	.75	2.54	.71	2.35	.85
5	1.53*	.71	3.61	1.01	1.85*	.83	1.50	.86
6	1.79*	.77	3.79	.94	2.08	.56	1.65	.75
7	1.53*	.87	3.91	1.02	1.88*	.77	1.15	.37
8	1.66*	.94	3.94	1.06	1.88*	.99	1.35	.69
9	1.51*	.76	3.64	1.08	1.85*	.92	1.35	.89
10	2.01*	1.02	3.21	1.06	1.77	.82	1.65	.89
11	2.74*	1.12	3.34	1.03	2.73	1.12	2.77	1.34
12	2.61*	1.20	3.51	1.11	2.54	1.14	2.35	1.09
13	1.74*	.87	4.21	.91				
14	1.80*	.80	2.78	1.12	1.58**	.58	1.35	.49
15	2.68**	1.22	3.13	1.06	2.19	1.20	1.96	1.54
16	1.74*	.99	3.64	1.04	1.65**	.56	1.35	.56
17	1.75*	1.03	3.23	1.26	1.81	.85	1.58	.99
18	1.75*	.86	3.35	1.06	1.88**	.77	1.58	.95
19	1.58*	.85	3.91	1.09	2.04*	1.11	1.42	1.10
20	3.10*	1.12	2.43	1.09	2.85*	.88	2.23	.91
21	1.86*	.82	2.94	1.04	2.12*	1.03	1.81	1.10
22	1.79*	.88	3.36	1.05	2.08*	.63	1.50	.51
23	1.56*	.66	3.22	1.01	1.81**	.69	1.54	.86
24	2.10*	.99	3.75	1.00	2.15**	.97	1.88	1.14
25	1.74*	.70	3.27	.97	1.73*	.60	1.42	.64
26	1.48*	.68	3.13	1.26	1.85*	.92	1.54	.90
27	1.62*	.74	3.40	1.12	1.69	.55	1.35	.69
28	1.74*	.77	3.19	1.03	1.96	.77	1.81	1.10
29	2.10*	.85	3.30	1.01	2.31	.84	2.19	1.17
30	2.64*	1.04	3.74	.92	2.73	1.22	3.35	1.16
Mean total	1.96*	.37	3.40	.47	2.07*	.29	1.70	.32

Table 9. Difference among the means of the elements considered (all significant at $p<.01$ level).

Elements	More Creative	Less creative	How I think I would be
Less creative	1.40		
How I think I would be	.11	-1.33	
How I would like to be	-.26	-1.70	1.00

This 30-item instrument (Appendix E) seems then an appropriate instrument to submit to a pilot study, where more subjects can bring data suitable for further evaluation, factor separation and possible item reduction of the whole questionnaire. This pilot study must include a test-retest evaluation, so that the reliability characteristics of the instrument may be appreciated.

The resulting instrument, after a construct-related validation study, is expected to fit the objectives defined in the last chapter of the literature review and, as no further items will be included, or rephrased, but only deleted, the data provided through the present instrument may be used together with the data provided by a future instrument.

CHAPTER FOUR

THE PILOT STUDY

The pilot study was intended to allow for a final testing and refining of the instrument, to train in the whole data collection procedure, and to appreciate a first distribution of the results.

The questionnaire which came out of the instrument preparation, containing 29 items, or constructs (see Appendix E), was scored in four elements, or columns, plus a control item "Fits my ideal of a teacher", to be scored in the first two elements. This instrument was administered to samples of students and lecturers of one of the target faculties - the *Escola Superior de Comunicação Social* [School of Advanced Media Studies], followed by interviews with lecturers rated as creative by a representative group of students, and the observation of their performance.

The presentation of the method followed, the results obtained, the content of the interviews, and the resulting instrument from the analysis made, is the purpose of this chapter.

Subjects and Procedure

The questionnaires were administered either by myself, to my students (second year, Public Relations - PR - Course), or by colleagues who volunteered to do it, at the end or the beginning of their classes. The first administration of questionnaires occurred in January (my students) and the last in April, 1997 (Marketing & Publicity Course - MP).

Questionnaires were administered to the students who came to the class of the lecturers who had volunteered to help the research; they were given the questionnaire without further explanation, and filled it in an average of 15 minutes, without asking any questions or making any remark. The total numbers of the sample, as may be observed in Table 10, did not exceed one third of the whole population of students, at the time.

Table 10. Comparison between the total population and the number of questionnaires taken as sample, of students and staff, by each independent variable considered (n=228), in the school year of 1996-97.

		SAMPLE		POPULATION		%SAMPLE/POP.	
Variables	Variable label	Students	Lecturers	Students	Lecturers	Students	Lecturers
Sex	Male	77	9	267	39	28	24
	Female	129	13	445	43	28	28
Public Relations Course	1st year	51	Not appl.	147	Not appl.	35	Not appl.
	2nd year	41		104		40	
	3rd year	30		90		38	
	Total	122		341		36	
Marketig and Publicity Course	1st year	29	Not appl.	159	Not appl.	18	Not appl.
	2nd year	29		107		27	
	3rd year	26		105		29	
	Total	84		371		24	
Exp. teaching (years)	3 or less	INAP	5.	Not appl.	12	Not appl.	41
	More than 10		10		20		50
Total		206	22	712	82	28	26

After obtaining authorisation from the School's administration (Appendix G), the academic staff received a letter inviting them to score the instrument, stating the purpose of the investigation, and the returning procedure (planned so that it would be impossible to identify the respondents), which were placed in each teacher's own mail box (Appendix H). Only permanent and contracted staff were asked to fill in the questionnaire, due to the difficulty of contacting others. As seen in Table 10, about 27% of the staff filled in and returned the questionnaire (to my mail box): This happened between late February and April, 1997, and some complained about the difficulty of the proper scoring, and the time consumed in each decision.

Following the administration of the questionnaire, I asked the Students' Association to give me a list of lecturers they considered creative, with the recommendation that this list should come out of a meeting where each year and course were represented, and that there should be some consensus in the nomination. No definitions of creative teaching were given, nor were they asked for a specific number of lecturers in the list. After two weeks, the Students' Association handed over a list with four names, two of them having been nominated by students representative of each course; two of them male and two female; three of them tenured and one hired. When asked for reasons for nomination, some students gave aspects like surprise, fun, team work and communication, as reasons for making that choice. The administration were also asked to provide a list, but none of the members of the management board thought they had enough elements of information to assess any member of the staff.

Results

The instrument was first evaluated as to its metric characteristics, then a descriptive analysis was made, followed by a factorial analysis and an analysis of variance.

Reliability

The instrument was first evaluated against its time stability.

Before the beginning of a normal session, 53 second-year PR students were asked to fill in the questionnaire, and to put a mark on it so they could recognise their questionnaires later; three weeks later 62 students of the same course and year were asked to fill in the same questionnaire, and then to find their first one, amongst a pile of the previous 53, so they could be put together. The scores of those who attended both sessions and were able to find their first questionnaire (a total of 41) were correlated in order to evaluate the stability of the scorings over a short period.

The Pearson correlation coefficients were calculated and are shown in Table 11, which displays also the Alpha coefficient for each item (if deleted), in each of the two applications. The two last rows of this Table show the mean of each column, and the correlation coefficient between the mean scores of the two applications, in each element, respectively. The fact that the number of subjects is different in both applications is because only 41 of the total 228 subjects filled in the questionnaire for a second time.

Table 11 shows a stronger internal consistency in the first two elements, rather than the last two, giving the idea that it is easier to maintain our concepts about what creative and non-creative teachers are, than about what we think we are or would like to be. This consistency is stronger in the second application, as is understandable.

Together with the high internal consistency, a strong correlation between the mean scores of each application exists, even though the mean of the correlation coefficients of each item is not so high. Observing the detail, we find some items, for example numbers 4, 11, 15, 18 and 20, which reduce the reliability of the instrument. This may indicate that people make minor adjustments of their opinion, between time intervals, while keeping the whole picture stable.

Table 11. Cronbach's Alpha coefficients of the questionnaire, if the item was deleted (α if del.), for the total sample (n=228) and for the second application (retest: n_1=41), and test-retest correlation (Pearson linear coefficient) values for each item (Retest), the mean item correlation score, and the correlation between total scores, in each element.

Item No	More creative teacher			Less creative teacher			As I think I would be (I think I am), as a lecturer			As I would like to be, as a lecturer		
	n=228	Retest		n=228	Retest		n=228	Retest		n=228	Retest	
	α if del.	Corr coef	α if del.	α if del.	Corr coef	α if del.	α if del.	Corr coef	α if del.	α if del.	Corr coef	α if del.
1	.84	.68	.92	.88	.78	.87	.76	.51	.78	.72	.55	.80
2	.83	.83	.92	.88	.62	.87	.75	.54	.77	.72	.69	.80
3	.83	.44	.92	.88	.62	.88	.76	.36	.80	.72	.30*	.81
4	.83	.72	.92	.88	.21*	.87	.76	.20*	.79	.72	.56	.79
5	.83	.69	.92	.87	.26*	.87	.75	.39	.78	.71	.51	.79
6	.83	.69	.92	.88	.40	.87	.75	.37	.78	.71	.53	.79
7	.83	93	.92	.88	.72	.87	.75	.56	.77	.71	.61	.80
8	.83	.95	.92	.87	.60	.86	.75	.22*	.78	.71	.51	.79
9	.83	.52	.92	.87	.40	.87	.75	.19*	.78	.71	.57	.79
10	.83	.57	.92	.87	.44	.87	.75	.75	.78	.71	.54	.79
11	.83	.55	.92	.88	.28*	.88	.76	.29*	.80	.72	.23*	.79
12	.83	.82	.92	.88	.50	.87	.75	.68	.78	.72	.85	.81
13	-	.55	.92	-	.61	-	-	-	-	-	-	-
14	.82	.47	.92	.88	.39	.87	.75	.40	.78	.71	.19*	.78
15	.83	.30*	.93	.88	.24*	.89	.76	.55	.80	.73	.56	.80
16	.83	.38	.92	.87	.57	.87	.75	.29*	.78	.71	.31	.78
17	.83	.86	.92	.87	.38	.86	.76	.64	.79	.72	.64	.80
18	.83	.61	.92	.87	.56	.87	.76	.26*	.80	.72	.25*	.81
19	.82	.88	.92	.88	.58	.86	.74	.78	.79	.71	.81	.80
20	.84	.60	.93	.88	.25*	.88	.77	.47	.81	.72	.65	.81
21	.83	.59	.92	.88	.23*	.87	.76	.36	.80	.74	.55	.80
22	.83	.57	.92	.88	.71	.87	.75	.20*	.78	.71	.63	.79
23	.83	.55	.92	.87	.53	.87	.75	.66	.79	.71	.51	.79
24	.83	.88	.92	.88	.54	.87	.76	.64	.78	.72	.84	.79
25	.82	.67	.92	.87	.47	.87	.75	.54	.78	.72	.57	.79
26	.83	.90	.92	.87	.67	.87	.76	.65	.80	.71	.83	.80
27	.82	.91	.92	.87	.74	.87	.75	.91	.78	.71	.94	.79
28	.82	.55	.92	.88	.47	.87	.75	.50	.78	.71	.66	.78
29	.83	.62	.92	.88	.60	.88	.76	.58	.80	.72	.47	.79
30	.83	.72	.92	.88	.75	.87	.76	.76	.80	.72	.87	.81
Mean score	.83	.69	.91	.88	.61	.87	.76	.66	.80	.72	.70	.80
Total score	.83	.94	.92	.88	.79	.88	.76	.96	.79	.73	.96	.80

(*) Correlation NOT significant at p<.01 level

The instrument shows then a strong time stability of its total score, and a fair stability when the items are considered individually.

Validity

As a means to evaluate if the instrument scores, of the first two elements, were representative of the concept of creative and non-creative lecturer (construct validity), control item number 13 ("Corresponds to my ideal of teacher") was used to ask for preferences about creative teaching (13A), or non creative teaching (13B). A correlation analysis, between item 13 (A and B) and the mean score of each of the first two elements (when the item is deleted), showed statistical significance (r=.50, p<.01, in the "More creative teacher", and r=.51, p<.01, in the "Less creative teacher"), thus indicating that the preference that each person gives to creative teaching (item 13A) is close to how he or she scores the whole construct (the instrument items). As may be seen in Table 12, item 13A has higher correlation than item 13B with the means of the last two elements; this indicates a stronger relationship between preferences for creative teaching and the real and ideal images of one's own teaching, rather than these latter images and the degree of rejection of non-creative teaching. As to the first two elements, one may see a stronger relationship between item 13B and the first element, rather than 13A and the second, thus indicating the possibility that a change in preference in creative teaching does not imply a direct correspondence with rejection of non-creative teaching behaviours, and vice-versa.

Table 12. Pearson correlation coefficients between item 13 ("Fits my ideal of a teacher"), seen both in the "more creative" element (A), and in the "less creative" (B), and the mean over all the other items of each element.

ITEM 13	More creative teacher	Less creative teacher	As I think I am, as a lecturer	As I would like to be, as a lecturer
A	.50*	-.05	.21*	.29*
B	-.32*	.51*	-.08	-.17*

(*) Significant to the p<.01 level

To analyse further this last aspect, the scores of item 13, in both elements, were crosstabulated, and the results shown in Table 13.

As shown in the Table, for each possible value of A, there appear various values of B, and vice-versa, thus indicating that preferring more or less a creative teacher does not imply a corresponding higher or lower rejection of the non-creative one. Even though extreme values are rare (practically no one rejects the creative teacher or accepts the non-creative as ideal), the distribution of scores seems to indicate that creative and non-creative ways of teaching may not be seen as opposites by a considerable number of people.

Table 13. Crosstabulation of scores given to item 13 ("Corresponds to my ideal of a teacher"), in the first two elements (A - "More creative teacher", and B - "Less creative teacher").

		ITEM B (Less creative)					
Possible values		1	2	3	4	5	Total (*)
	1	1	3	12	28	78	122
	2	0	5	16	43	14	78
ITEM A	3	0	2	15	1	5	23
(More	4	0	1	0	0	0	1
creative)	5	1	0	1	1	1	4
Total (*)		2	11	44	73	98	228

(*) All diagonal crosstabulations between A scores of 1 and 3, and B scores of 3 and 5, and totals, are significant to the p<.01 level (Pearson Chi-Square)

Even though these findings need better clarification, a certain independence between both constructs (creative and non-creative) may be devised, as well as a stronger prediction of real and ideal images according to the degree of preference for creative teaching. This will indicate the use of item 13 A values ("more creative" column), as predictor of real and ideal styles, in further calculations, rather than item 13 B values ("less creative" column).

Descriptive analysis

To evaluate the general distribution of results, a descriptive analysis was performed. As shown in Tables 14 and 15, practically every item ranged between the extreme values 1 and 5, thus giving proof of (discriminant) validity of the instrument. In the first element, item 20 ("Loses himself with subjects outside the lesson objective") appears again slightly different from the rest of the items (mean score higher than 3.00), as it does in the second element. Items 3, 21 and 22 also seem discordant of the second element. The "non-creative" distribution shows a standard deviation larger than the "creative" one, thus indicating more dispersion of opinions concerning the characterisation of the less creative teacher, rather than the more creative. In the last two elements, only item 30 seems to be left out of the creative construct (mean score higher than 3.00), for reasons which justify a deeper analysis, which will be carried out when analysing the differences between students' and lecturers' conceptions of teaching.

Table 14. Descriptive analysis of results, indicating the mean (x), standard deviation (s), minimum, and maximum values obtained, in each item and in the total mean, by the whole sample (n=228), in the first two elements.

Item number and content	Rev. (*)	More creative teacher		Less creative teacher	
		x	s	x	s
1 Follows the programme in a linear way	R	2.24	1.05	3.95	1.03
2 Teaching is mainly a source of income	R	1.90	1.00	3.39	1.15
3 Knows what he or she is talking about		1.75	.82	2.45	.99
4 The students receive high marks		2.49	.87	3.26	.81
5 Discusses controversial subjects with students		1.54	.75	3.51	1.06
6 Creates a playground where everything can be learned		1.74	.89	3.74	.95
7 Unable to teach a lesson he or she has not prepared	R	1.58	.94	3.69	1.22
8 Strictly follows orders, adding nothing of himself or herself	R	1.37	.72	3.75	1.25
9 Makes students like the subject through interesting activities		1.39	.70	3.69	1.[illegible]3
10 Takes students to visit places		1.88	.93	3.41	1.02
11 Welcomes every student, even latecomers		2.41	1.00	3.33	1.01
12 Strong lecturer-student distinction	R	2.15	1.08	3.55	1.17
13 Fits in with my ideal of a lecturer		1.63	.82	4.11	.94
14 Gives support to weaker students		2.08	.92	3.79	1.03
15 Immune to 'sucking up'		2.66	1.11	3.09	1.03
16 Is not limited to tests as a way of assessment.		1.57	.83	3.38	1.17
17 Does not have a sense of humour	R	1.65	.90	3.19	1.21
18 Creates analogies to explain the subject matter		1.70	.94	3.17	1.12
19 Teaches boring lessons	R	1.59	.85	3.78	1.16
20 Loses himself or herself with subjects outside the lesson objective	R	3.28	1.17	2.61	1.11
21 The subject matter helps students to solve problems		1.93	.88	2.83	1.08
22 Promotes team work		1.69	.88	2.94	1.06
23 Very observant of the surrounding world		1.62	.84	3.06	1.08
24 Limits himself or herself to reality	R	2.05	.96	3.67	1.05
25 Encourages work different to what has previously been done		1.64	.87	3.48	1.06
26 Never gives practical examples	R	1.55	.89	3.01	1.21
27 Distant from students	R	1.75	.90	3.40	1.12
28 Creates a friendly relationship with the students		1.91	.90	3.24	1.02
29 Likes students who ask difficult questions		2.21	1.01	3.16	1.02
30 Identifies the students with friendly nicknames		2.70	1.09	3.71	1.11
Mean total		1.92	.39	3.32	.52

(*) This indicates the items that were scored as reverse (R)

Table 15. Descriptive analysis of results, indicating the mean (x), standard deviation (s), minimum, and maximum values obtained, in each item and in the total mean, by the whole sample (n=228), in the last two elements.

		As I think I would be (I think I am), as a lecturer		As I would like to be, as a lecturer	
Item No	Reverse (*)	x	s	x	s
1	R	2.93	1.14	2.51	1.28
2	R	2.23	1.09	1.79	1.02
3		1.80	.69	1.38	.76
4		2.57	.80	2.05	.99
5		1.73	.66	1.36	.59
6		2.22	.82	1.68	.87
7	R	2.53	1.09	2.02	1.32
8	R	1.97	.94	1.55	.90
9		2.01	.81	1.40	.72
10		2.08	.91	1.71	.88
11		2.37	1.02	2.29	1.05
12	R	2.35	1.13	2.38	1.33
14		1.82	.73	1.42	.60
15		2.37	1.16	2.15	1.32
16		1.80	.80	1.52	.83
17		2.05	1.13	1.85	1.25
18	R	2.03	.87	1.69	1.02
19		2.11	1.00	1.59	1.07
20	R	2.76	1.08	2.41	1.23
21	R	1.99	.76	1.75	.92
22		1.90	.90	1.64	.87
23		1.81	.79	1.45	.76
24		2.39	1.04	1.99	1.15
25	R	1.91	.75	1.51	.81
26		1.74	.96	1.64	1.07
27	R	1.88	.87	1.56	.97
28	R	2.01	.93	1.78	1.03
29		2.42	1.12	2.18	1.04
30		3.10	1.28	2.97	1.19
Total		2.21	.33	.34	1.84

(*) This indicates the items that were scored as reverse (R)

Item Reduction

The exploratory factor analysis revealed difficulty in devising a clear factor structure, especially in the last two elements. Given the fact that the priority was to discriminate between perceptions of students and lecturers, against the independent variables considered, it was decided to make an item by item analysis of variance (ANOVA), to see which of them had that capability. Tables 16 and 17 show the results of this analysis.

Table 16. Items which differentiate (X) between lecturers and students, course, course year, and course year within either Public Relations (PR) Course, or Marketing and Publicity (MP) Course, in the first two elements, at least at $p<.05$ level.

Item No	More creative teacher					Less creative teacher				
	Stud. Vs Lect.	Course	Course year	Course year, in PR	Course year in MP	Stud. vs Lect.	Course	Course year	Course year, in PR	Course year in MP
1			x	x	x					
2		x								
3			x	x	x			x		x
4										
5										
6								x	x	
7			x	x				x	x	
8									x	
9		x	x	x	x					
10	x	x	x	x						
11					x					
12										
14		x	x	x	x					
15			x	x	x					
16								x		
17			x					x		
18	x									
19	x		x	x		x				
20			x	x	x	x				
21	x									
22			x		x					
23			x							
24								x	x	
25										
26			x	x					x	x
27			x	x						
28	x		x	x	x					
29										
30								x	x	x

Table 17. Items which differentiate (X) between lecturers and students, course, course year, and course year within either Public Relations (PR) Course, or Marketing and Publicity (MP) Course, in the last two elements, at least at p<.05 level.

Item No	As I think I would be (I think I am), as a lecturer					As I would like to be, as a lecturer				
	Stud. Vs Lect.	Course	Course year	Course year, in PR	Course year in MP	Stud. vs Lect.	Course	Course year	Course year, in PR	Course year in MP
1					x	x				
2	x			x		x		x	x	
3		x				x	x	x		
4	x				x	x		x		
5			x		x			x	x	
6	x									
7			x	x		x		x	x	
8										
9	x		x		x					
10	x	x	x	x		x				
11			x					x	x	x
12								x	x	
14			x	x						
15	x						x			
16										
17		x					x			
18										
19			x	x						
20										x
21							x			
22					x					
23										
24				x						
25										
26		x								
27				x					x	
28										
29										
30	x	x				x				

To provide further insight another analysis of variance was performed, to evaluate the capability of each item to differentiate between elements (t-test for dependent samples), and the results are shown in Table 18. This Table also shows the decision made either to maintain or to eliminate the item, based on every data analysis made up to now, which provided elements within the following decision making criteria, favourable to the retention of an item:

- being perceived by the subjects as 'direct' or 'reverse', according to the intention of the questionnaire, as far as creative/non-creative teaching behaviours were concerned (that is, for the "More creative" element, less than 3, if the item was direct, or greater than, if not);
- a range of ratings between extreme scores of 1 and 5, and variance close to or greater than 1.00 (discriminant power); statistically significant difference between the first two elements, and between the last two, but also between the creative and the real, and the creative and the ideal;
- statistically significant difference between lecturers' and students' ratings, as well as between courses, course year, and course year within each course.

Table 18. Items that DO NOT differentiate (X) between the first two elements (A-B), the last two (C-D), the creative and the real (A-C), and the creative and the ideal (A-D), and the final decision as to accept, reject or no decision made about the item.

Item No	A-B	C-D	A-C	A-D	Final decision
1					In doubt
2				x	In doubt
3			x		In doubt
4			x		In doubt
5					In doubt
6				x	In doubt
7					In doubt
8					Rejected
9				x	Accepted
10					Accepted
11		x	x	x	Rejected
12		x			Rejected
14					In doubt
15					In doubt
16				x	Rejected
17					Rejected
18				x	Accepted
19				x	Accepted
20					Rejected
21			x		Accepted
22				x	In doubt
23					In doubt
24				x	In doubt
25				x	Rejected
26				x	Accepted
27			x		Accepted
28			x		Accepted
29				x	Rejected
30					Accepted

Factor Structure

With the pool of items accepted and still in doubt, a series of exploratory factor analyses were performed, in order to devise a clear factor structure that could allow for the use of one or more general measures, instead of a single item measure. The problem is that due to the commonality of the items in every element, it was difficult to find the same factor structure in each of the four elements.

Principal-components factor analyses were performed, followed by varimax (normalised) rotation. Initial factor analyses yielded four to six factors, with eigenvalues greater than 1, depending on the element considered. However, after the examination of the variance accounted for by each factor, a scree test was performed and subsequent factor analyses limited the total number of factors to two. One factor, grouping eight items (numbers 7, 18, 19, 21, 23, 24, 26 and 27), was designated TASK SUBSCALE, and another group of eight items (numbers 4, 5, 6, 9, 10, 22, 28 and 30), was designated RELATIONSHIP SUBSCALE. Looking in more detail at each pool of items, one may see that "Task" items seem to be connected with instrumental ways of getting teaching to be *effective*, while the "Relationship" items seem to deal with behaviours normally designated as *creative*. Because the summated (factor) scores were computed by simple mean of the items included (instead of the factor scores provided by the computer), both factors are correlated on every element.

As may be seen in Table 19, certain items load in different factors, depending on the element considered, as happens with items 7 and 21, which may be seen as part of the performance of a creative teacher; and items 22 and 28, which fall also within the scope of an effective teacher. As both factors are correlated from .33 to .69, depending on the elements considered, care should be taken in the interpretations of these scores.

All items that did not fit in this structure were eliminated from further calculations, and the final summated scales were formed by examining the clarity and meaningfulness of the resulting two.

Table 19. Loadings of each of the 16 items, in each factor considered, taken from ratings in each element, after varimax rotation (n=228).

	More creative teacher		Less creative teacher		As I think I would be (I think I am), as a lecturer		As I would like to be, as a lecturer	
	FACTORS (% of variance explained)							
Item Nm	Task (26%)	Relation (9%)	Task (32%)	Relation (8%)	Task (20%)	Relation (9%)	Task (20%)	Relation (10%)
7	**.32**	.22	**.14**	.61	**.07**	.51	**.33**	.19
18	**.15**	.32	**.63**	.21	**.49**	-.04	**.13**	.25
19	**.66**	.16	**.37**	.41	**.28**	.51	**.47**	.03
21	**.08**	.43	**.63**	.03	**.43**	-.20	**.14**	.29
23	**.48**	.24	**.57**	.29	**.61**	.02	**.49**	.28
24	**.39**	.11	**.27**	.48	**.27**	.14	**.56**	-.07
26	**.81**	-.13	**.76**	.11	**.27**	.09	**.69**	-.06
27	**.71**	.13	**.55**	.45	**.49**	.22	**.62**	.14
4	.03	**.64**	-.09	**.53**	-.11	**.43**	-.16	**.47**
5	.33	**.47**	.29	**.63**	.52	**.13**	.35	**.54**
6	.13	**.60**	.15	**.72**	.20	**.60**	.29	**.46**
9	.42	**.41**	.45	**.58**	.17	**.67**	.27	**.55**
10	.29	**.54**	.46	**.40**	.09	**.66**	-.04	**.67**
22	.41	**.47**	.58	**.02**	.67	**.17**	.35	**.53**
28	.32	**.62**	.48	**.34**	.56	**.28**	.02	**.57**
30	.01	**.66**	.11	**.46**	.08	**.37**	-.07	**.47**

As items loaded and grouped in the factors considered in different ways, it became necessary to evaluate the fit between the two-summated scale model and the population, in every element; so a model with these two factors (correlated factor model, with no item allowed to load on more than one latent variable) was submitted to Maximum Likelihood Confirmatory Factor Analyses, using the SEPATH program of STATISTICA package, to address the fit of the scales to the data; as the lecturers' sample was very small, and could compromise the model, there was no separation of populations. Table 20 shows the results of the calculations.

As the Table shows, and according to Sharma (1996), the overall fit measures indicate that the two-factor model provides a fair fit of the data to the sample (GFI - Goodness-of-Fit Index, and AGFI - Adjusted Goodness-of-

Fit Index close to .95; RMSEA - Root Mean Square Residual close to .05, and Pop. Gamma Index higher than .95), with a smaller adjustment of the two first elements - "More creative teacher", and "Less creative teacher" - probably due to item 21, which tends to be seen as a "Relationship" item, in some of the elements. As the research progresses and the sample of lecturers increases, it will be possible to evaluate how the model fits students and lecturers, as separate populations. Hair, Anderson, Tatham & Black (1987), and Long (1983) indicate that the two-factor model provides a good fit of the data to the sample (GFI and AGFI greater than .90; RMSEA between .05 and .08; and Pop. Gamma Index higher than .95).

The Chi-square statistic was significant, indicating differences between actual and predicted matrices, and thus a poor model fit. Nevertheless, as Schumacker & Lomax advise, for large samples (n>200), this measure tends to become too sensitive, and researchers tend to disregard the Chi-square significance level in evaluating the model's fit.

Table 20. Single sample Fit indices of a two-factor confirmatory factor analysis, in each of the four elements

INDICES	More creative teacher	Less creative teacher	As I think I would be (I think I am), as a lecturer	As I would like to be, as a lecturer
Chi-square stat	210	214	162	173
df	103	103	103	103
GFI	.90	.89	.91	.91
AGFI	.87	.86	.89	.88
Steiger-Lind RMSEA	.07	.07	.05	.06
Pop. Gamma Index	.93	.94	.95	.96

GFI=Goodness-of-Fit Index; AGFI=Adjusted Goodness-of-Fit Index; RMSEA=Root Mean Square Error of Approximation

To evaluate the consistency of the two-factor model, an internal consistency analysis was performed, and the results are shown in Table 21.

Table 21. Cronbach's Alpha values of each summated scale, in each element.

FACTORS	More creative teacher	Less creative teacher	As I think I would be (I think I am), as a lecturer	As I would like to be, as a lecturer
Task	.64	.79	.63	.67
Relationship	.74	.74	.65	.70
Total	.79	85	.75	.80

These values, although provided by only a quarter of the items used in Table 10, allow us to use the model as a means to evaluate the score differences against each independent variable considered. Nevertheless care must be taken in the interpretation of the task summated scale, especially in the third element, as well as over the fact that both summated scales are correlated.

Validity of the Two-Factor model: Analysis of Variance

Using only these two factors (summated scales) various analyses of variance were performed against the independent variables already established as directly related to the study, shown in Table 22. As the variable "SEX" provided no statistical difference (women scored closer to the creative construct, in the relationship factor of the first element, at p<.04), and the reduced sample of lecturers did not allow a verification of other variables like "EXPERIENCE" and "QUALIFICATIONS", only "COURSE" and "COURSE YEAR", were evaluated, besides comparing students and lecturers.

In the first analysis, both summated scales, in each element, were compared between teachers and students, and the results are shown in Table 22.

Table 22. Mean scores, of students and lecturers, in each element and summated scale, and their significance of difference.

Subjects	More creative teacher		Less creative teacher		As I think I would be (I think I am), as a lecturer		As I would like to be, as a lecturer	
	Task	Relation	Task	Relation	Task	Relation	Task	Relation
Lecturers	1.63	2.15	3.21	3.45	2.02	2.74	1.49	2.21
Students	1.73	1.95	3.34	3.42	2.06	2.16	1.74	1.75
Sign. of diff	.33	.08	.42	.77	.65	.00	.03	.00

As may be seen, the two-factor model is able to detect differences between lecturers and students, as to the ways they see the several elements defined.

To evaluate the instrument's possibilities of detecting differences between students, both courses were compared, as well as the different years, and the results shown in Tables 23 and 24.

Table 23. Mean scores of students' courses, in each element and factor, and their significance of difference.

COURSE	More creative teacher		Less creative teacher		As I think I would be (I think I am), as a lecturer		As I would like to be, as a lecturer	
	Task	Relation	Task	Relation	Task	Relation	Task	Relation
Pub. Rel.	1.73	1.86	3.35	3.40	2.10	2.10	1.81	1.75
Marketing	1.73	2.06	3.32	3.43	2.01	2.19	1.64	1.75
Sign. of diff	.93	.01	.77	.74	.18	.15	.02	.96

Table 24. Mean scores of students' years, in each element and factor, and their significance of difference.

COURSE YEAR	More creative teacher		Less creative teacher		As I think I would be (I think I am), as a lecturer		As I would like to be, as a lecturer	
	Task	Relation	Task	Relation	Task	Relation	Task	Relation
First	1.56	1.73	3.42	3.53	2.04	2.04	1.68	1.67
Second	1.79	2.06	3.31	3.41	1.99	2.15	1.73	1.75
Third	1.90	2.11	3.25	3.26	2.18	2.24	1.82	1.87
Sign. of diff	.00 (*)	.00 (*)	.35	.03	.05	.02(**)	.30	.06

Scheffe test:
(*) First year differs from the others at $p<.01$ level; (**)First year differs from the third at $p<.02$ level

As may be seen, the instrument provided a clear picture of differences between students, according to the variables considered.

To evaluate further the possibilities of the instrument in separating the various elements (columns) considered, a dependent sample t-test was performed for each course, and total. The results expressed in Table 25 confirm the ability of the 16-item questionnaire to detect differences between elements, according to the different sub-samples.

Table 25. Differences between mean scores (X), in each pair of elements, in each summated scale and total, by group of subjects.

SAMPLE	More-Less creative			Creative-How would I be			Creative-How I would like to be			Would be-Would' like to be		
	Task	Rel.	Total	Task	Rel.	Total	Task	Rel.	Total	Task	Rel.	Total
Lecturers	X	X	X	X	X	X				X	X	X
1st year SS	X	X	X	X	X	X	(**)	(*)	(**)	X	X	X
2nd year S	X	X	X	X	(*)	(*)		X	X	X	X	X
3rd year SS	X	X	X	X	X	X		(*)	(*)	X	X	X
Total	X	X	X	X	X	X		X	X	X	X	X

(*) Only students from MP Course differ;
(**) Only students from PR Course differ.

To conclude this analysis it was decided to evaluate the correspondence between each person's preference for creative (or non-creative) teaching (through the score given to item 13, in the first two columns), to see if the preference for one type would imply the rejection of the other type.

Table 26 shows a crosstabulation of the various significant combinations of item 13A and 13B values, by course and year of the subjects, to evaluate the contribution of this item to assessing the construct validity of the questionnaire.

Table 26. Crosstabulation of significant combination of scores given to item 13 ("Corresponds to my ideal of a teacher"), in the first two elements (A - "More creative teacher", and B - "Less creative teacher"), by sample of subjects.

Sign. Combinations of item 13A and 13B	Lect.	PR COURSE 1st year	2nd year	3rd year	MP COURSE 1st year	2nd year	3rd year	Total
1-5	7	28	14	6	8	6	9	78
2-4	7	5	12	6	5	5	3	43
3-3	1	2	4	5	2	1	0	15
Total	15	35	30	17	15	12	12	136
% of total sample	68	68	73	57	52	41	46	60

As may be appreciated, Table 26 reveals a direct correspondence between preferences for creative teaching (scores 1 and 2, of item 13A) and the rejection of the non-creative type of teaching (scores 4 and 5, of item 13B) only in little more than 50% of the sample considered; this shows that this short version of the questionnaire provides results similar to those of the 30-item version, as discussed earlier, during the "Instrument" part of this chapter, in that both types of teaching are not seen as opposites in many people's perceptions.

Even though admitting that the instrument's reliability may suffer as a result of the reduction of the number of items, this refers only to its internal consistency, and not necessarily to its time stability, which is expected to increase. Together with time stability, the construct validity of the instrument has increased, because the items that remain group together in much clearer clusters than in the 30-item version.

This resulting version (Appendix F) is expected to provide more accurate answers, and a higher return rate, due to the reduction of the time needed to fill it in.

Qualitative Analysis

As stated in the Procedure, four interviews took place with the lecturers rated as creative by the Students' Association. Besides trying to find out why they thought they had been chosen, questions were put to understand their personal perception of each of the four elements ("What is a creative teacher?"; "What is a non-creative one?"; "How do you see yourself?"; "How would you like to be?").

The procedure utilised proved effective, and the results proved to be fruitful to the investigation, as it will be presented and discussed in the Results chapter.

Concluding Comments on the Pilot Study

The results seem to indicate that the instrument is able to detect differences in perception between students and lecturers, as far as creative teaching is concerned. These differences occur mainly in the idea both populations have about the importance of the relationship aspects of teaching, with the students giving it more importance than faculty do. Nevertheless the teachers seem to regard as important the ideal image they would like to attain, in the task aspects, while students do not consider this part as important as the relationship aspects. This fact was not confirmed during the interviews, as all four lecturers stated that their present performance was satisfactory enough to them so they did not wish to improve anything in particular.

Given the difficulty in building a clear designation for each summated scale (factor), as well as having a pool of items always loading to the same factor, no matter the element considered, it is possible that what it is called "Task" may be named *Effectiveness*, and what is designated "Relationship", *Creative Teaching*, although both clusters of items are intercorrelated. If these designations prove to be adequate, then a difference arises between students and staff, as far as the perception of teaching is concerned; it is to do with the fact that lecturers worry more about teacher effectiveness, and students about teacher communication ability (relationship), and so both populations are aiming at different targets as to what really matters in teaching. This fact became evident in the criteria used by the students to select the lecturers they consider creative, as well as during class observation of the interaction between the two. Students will probably not consider creative a lecturer who is not able to build a strong relationship with them, seen not as comradeship but as communication, and even if the interviewed lecturers state that they worry more about the task than about the relationship, it is this last aspect that becomes evident during the interaction.

The construction of the profiles of the creative and non-creative teachers seem to be more objective than was thought, as there were only minor differences as to this kind of perception. These differences seem to be more influenced by the way both profiles are valued, than any other variable, like being a teacher or a student, man or woman, younger or older. It also became clear that both concepts are not opposites to everybody.

It seems easier to get agreement on what people regard as the profile of a creative teacher, than on the non-creative one.

The questionnaire, which has come quite a considerable way since its inception (from the initial 160 constructs, to the present 16), without losing much of its reliability, seems to guarantee a fair validity as a measurement instrument of what people regard as the creative/non-creative profiles, and of real and ideal images that people have (or imagine) of themselves as teachers.

This instrument (Appendix F) thus seems a valid and reliable instrument for use within this research. Nevertheless, a more comprehensive validation study of the instrument must be made, in order to compare it against other criteria, especially other questionnaires designed to assess creative teaching, as well as questionnaires that separate task from relationship aspects.

If the remaining validation study confirms these properties, the version of the questionnaire resulting from this Pilot Study will be used in the remaining investigation.

CHAPTER FIVE

THE VALIDATION STUDY

From the pilot study there came a new version of the questionnaire (Appendix F), which was submitted to a validation study, where it was confronted with other instruments, considered as measuring similar constructs to the 16-item questionnaire - Leadership Behaviour Description Questionnaire (LBDQ), Alencar's questionnaire, and SYMLOG - administered to a sample of nursing students and teachers of the polytechnic (other than the IPL), in order to evaluate its concurrent (construct) validity.

The description of that validation study is the purpose of this chapter.

Instruments

In order to evaluate the construct-related validity of the 16-item questionnaire used in this research, three known instruments were chosen, based on the theoretical approaches expressed during the literature review chapters: two of them proposed by Jesuino (1987): the Leader Behaviour Description Questionnaire - Form XII (LBDQ), and the SYMLOG (Systematic Multiple Level Observation of Groups); and one concerning the evaluation of creative teaching in higher education - Eunice Alencar's Questionnaire (Alencar, 1994).

The Leader Behaviour Description Questionnaire - Form XII (LBDQ)

As shown in Appendix J, this questionnaire consists of 20 items, divided into two subscales: items 1 to 10, task; items 11 to 20, relationship. It aims at identifying the degree in which a designated leader is task-oriented or relationship-oriented, using leadership behaviours as descriptors.

The factorial analysis made of the sample results confirmed the theoretical separation of the items, and Cronbach's Alpha values for the internal consistency were found satisfactory (.69 - task; .87 - relationship).

Instead of asking the subject to rate a specified leader, the request was made to rate "the typical creative leader", and so each partial score (task or relationship) must be interpreted in relation to its proximity to a determined category of the Likert-type scale (1 - "Always", to 5 - "Never").

The SYMLOG

This instrument consists of 26 groups of statements (Appendix L), containing mainly the description of personality traits and types of social interaction, associated with the various dimensions considered, within a three-point scale ranging from 0 (Hardly ever) to 2 (Frequently).

Also, instead of asking the subject to rate a specific person, the request was made to rate the typical creative leader. The final ratings must be understood according to the theory (Bales & Cohen, 1974), but its explanation may be simplified with the help of the chart shown in Appendix L.

The three-dimensional space is defined by three axes, each one having two opposed directions, represented by letters (U-D; P-N; B-F). Within the 26 possible combinations (dimensions) of these directions (division of each direction into three parts. Combination of 3, three times = 3x3x3 = 27, minus one - the zero point in the space considered = 26), as expressed in Appendix L, the resulting scores are obtained by calculating the numerical difference between each opposed direction. This score of each direction is obtained by adding every score which includes the letter indicating that direction (each letter appears in nine items); for example, the ratings given by the subjects to the items UP, UPF, UPB, P, PF, PB, DP, DPF, and DPB, represent the total of the direction P (Friendly), while the ratings given to the items UNF, UN, UNB, NF, N, NB, DNF, DN, and DNB, represent the total of the opposed direction N (Hostile). The numeric difference between P and N gives us the score and the direction which, if equal to or above 5 points in U-D, 6 in P-N, or 3 in F-B, is said to define one dimension clearly over the other. In a bi-dimensional space representation, the differences P-N and F-B define a point in the space, and the difference U-D, defines the radius of a circle, centred at that point (filled if it is a D score, open if a U score is dominant).

Neither factorial analysis nor Cronbach's Alpha values apply.

Eunice Alencar's Questionnaire

The questionnaire, shown in Appendix M, consists of 19 items, all measuring the same factor - creative teaching behaviour - within a five-point scale ranging from 1 (Totally agree) to 5 (Totally disagree). The total score in creative teaching is obtained by calculating the mean score.

In this application a single factor was obtained, explaining 63% of the variance, through an exploratory factor analysis. This analysis led to the deletion of items 1, 13, 17 and 19, which did not seem to fit the whole distribution. The Cronbach's Alpha value found for the internal consistency of the remaining items was .96.

As in the previous cases, but now using the image of the teacher instead of the leader, the subjects were requested to rate "a typical creative teacher" in each item.

Subjects and procedure

After obtaining formal authorisation from the administration (Appendix G), a sample of convenience, in two State nursing schools (three-year courses, awarding the "Bacharelato") was drawn, consisting of 35 lecturers and 38 students. The lecturers were mainly women, between the ages of 35 and 55, with an average teaching experience of over 20 years, mainly as professional nurses (these subjects were former nurses who, after 1986, opted for a teaching career, instead of teaching and nursing), the majority having a Master's degree; the students were also mainly female, 20 years old or under, and the majority were ending their first year at the nursing school. These students are, in their majority, people who failed to enter Medicine courses, at the university, which require the highest scores of all.

A folder containing the four questionnaires was given to each lecturer, and five of these volunteered to ask their students to fill in similar questionnaires. Twenty-eight lecturers and 35 students returned the questionnaires correctly filled in within two weeks of its reception, thus resulting in a 63-subject sample.

Results

Although the aim was to evaluate only the correlation between the 16-item questionnaire and the others, it may be revealing to analyse the mean totals, as expressed in Table 27.

Table 27. Mean score differences between students and lecturers, in the 16-item questionnaire ("creative teacher" element), LBDQ, Alencar's questionnaire and SYMLOG.

	16-item		LBDQ		ALENCAR	SYMLOG		
	Task	Rel	Task	Rel		U-D	P-N	B-F
LECTURERS	1.70	1.67	2.05	1.51	1.26	3.71U	14.6P	.86B
STUDENTS	1.89	1.98	2.34	1.82	1.93	4.77U	13.1P	.23B
SIGN	.13	.00	.00	.02	.00	.06	.06	.36

As far as the raw results of the 16-item questionnaire are concerned, they are different from previous findings, as students show more distance from the creative concept than lecturers do (during the pilot study, students and teachers did not differ as to the characterisation of the "creative teacher"); the LBDQ appears with a relatively high score in the task aspects, probably because the items show some autocratic orientation, contrary to the creative approach of leadership, which is supported by the SYMLOG results. Even though Alencar's score was expected, the SYMLOG definition of the creative teacher is quite interesting, and coincident with the expectations made during the literature review (Chapter 3), as the subjects considered that the typical creative teacher is high in power (U orientation), very high in friendliness (P orientation), but not task-oriented. The literature defines the UP leader as the one directed towards social success, encouraging the others to interact, but not necessarily encouraging group task accomplishment, and as putting co-operation above competition; also, this type of leader is seen as adopting a "receptive" leadership style, aimed mainly at receiving suggestions and information, showing a friendly attitude, clearly relationship-oriented.

As to the differences found between lecturers and students they should not exist, according to the propositions of this research (students and lecturers do not differ as to their conception of the creative teacher). Nevertheless, we must consider the fact that we are dealing only with first-year students and with lecturers who were former nurses, with a deep orientation towards helping people and to establishing close relationships. The number of students is also not enough to draw a representative sample for this appreciation. These students entered the nursing Schools with very high marks, and the majority are people who did not succeed in entering the university in the course (Medicine) that requires the highest entrance grade of all courses, and so it is likely that they are not very fond of creativity in teaching because they want high grades. Comparing the results of these students and lecturers with those of the pilot study, we realise that in the former, lecturers score significantly lower than in the latter, as to perceptions of creative teaching (relationship factor), and students score significantly higher.

Table 28 shows the correlation obtained between the questionnaire and the other instruments.

Table 28. Pearson's linear correlation values between each test, in each of the two first elements and factors of the 16-item questionnaire.

16-Item	Factor	LBDQ			AL.	SYMLOG (**)		
		Tsk	Rel.	Total		U-D	P-N	B-F
MORE CREATIVE TEACHER	Task	.10	.28*	.24	.43*	.12	-.40*	.13
	Relation.	.34*	.31*	.37*	.45*	.10	-.40*	.04
	Total	.25	.36*	.36*	.53*	.14	-.49*	.11
LESS CREATIVE TEACHER	Task	-.12	-.06	-.10	-.11	.08	.32*	-.03
	Relation.	-.25	-.25	-.28*	-.08	.03	.42*	.15
	Total	-.21	-.18	-.22	-.10	.06	.43*	.07

(*) Significant at p<.01

(**) The fact that the correlations are negative is due to the fact that, in contrast with the other instruments, except in the case of the "Less creative teacher", the scale of the SYMLOG grows in the opposite direction (the larger the score, the closer to the concept in appreciation)

As may be seen, the instrument correlates significantly with the others, thus showing convergent (construct) validity. It thus seems an appropriate way to evaluate the idea that people have of creative teaching.

The validation process did not include the real (How I think I am/How I think I would be) and ideal (How I would like to be) images, as it would imply tripling the number of questionnaires the subjects would have to fill in (the remaining instruments had to be repeated, asking for self and ideal images of teaching and leading), thus reducing its accuracy and probability of return. Nevertheless, as the correlation between the various elements of the questionnaire has already been established, a direct inference may be drawn from the fact that a similar relationship between the instruments would appear, if the subjects were asked to rate themselves as teachers, or leaders, or as the teacher or leader they would like to be.

Considering the evidence presented so far, it seems that the 16-item questionnaire presents good validity characteristics, which make it a fair instrument to evaluate the degree of the subject's orientation towards creative teaching.

As to the validity of the construct that separates task and relationship aspects, Table 28 shows that it is the relationship subscale that allows us to understand that the tasks of leadership and of teaching are different, while the relationship aspects are more similar. Although both factors are correlated, this separation helps us to understand better the nature of creativity in teaching, and also in leadership.

To appreciate further the separation between task and relationship aspects, a table (Table 29) was drawn up, showing the relationship among the various instruments used in this process, other than the research instrument.

As can be appreciated, Table 29 indicates a relationship among each instrument similar to the one found between the 16-item questionnaire and the other instruments. Nevertheless, only the 16-item instrument allows for the separation between task and relationship aspects, as far as teaching is concerned. In fact, it may be seen that LBDQ's task aspects correlate with Alencar's questionnaire, as much as the relationship aspects, which is not logical, because teaching and leading are different things; they may be similar in the relationship involved, but yet different in the tasks, at least in those that do not apply to the classroom environment. The fact that the 16-item instrument does not correlate with the LBDQ, in the task aspects, but does so in the relationship aspects, supports its discriminant (construct) validity.

The fact that Alencar's questionnaire correlates with task and relationship items of both the LBDQ and the 16-item questionnaire, is probably because every one of its items describe the possible result of the teacher's actions in order to develop students' creativity, and not what the teacher does. For example, it does not say "Creates analogies to explain the subject matter", as in the 16-item, but "Stimulates the student to have new ideas related to the content of the subject matter", in a clear orientation towards the student, either in task or in relationship aspects. So what Alencar's questionnaire seems to measure is the "degree of orientation towards the development of students' creativity", not what the creative teacher is or does, as with the other questionnaires. On the other hand, the ratings that the subjects gave to Alencar's questionnaire ranged between 1 and 3 only, in the majority of the items, with an average score range of 1.00 to 2.89, making it into a poor research instrument to be used as an external criterion to validate other instruments, as to the characteristics of the typical creative teacher.

Table 29. Pearson's linear correlation values of each test, in each subscale

Subscales		LBDQ			AL.	SYMLOG		
		Tsk	Rel.	TOT		U-D	P-N	B-F
LBDQ	Task	–	.50*	.80*	.42*	-.03	-.45*	-.03
	Relation.		–	.92*	.42*	.11	-.49*	.01
	Total			–	.48*	.06	-.55*	-.00
ALENCAR					–	.17	-.55*	-.06
SYMLOG	U-D					–	-.04	-.02
	P-N						–	.19

(*) Significant at p<.01

The evidence presented supports the construct-related validity of the 16-item instrument. Previous findings had already supported construct validity (e.g. ability to discriminate among groups; convergence in varimax rotation of factors), as well as reliability (internal consistency and temporal stability). It seems, thus, a suitable instrument to be used in this research.

As to the results concerning the SYMLOG, it must be stressed that it relies basically in personality traits as descriptors, and so its correspondence with task or relationship behaviours cannot be made directly. That is probably why it correlates the same way with task and relationship behaviours of the LBDQ and of the 16-item questionnaires, as well as with Alencar's.

Even though not presented in this chapter, the 16-item questionnaire was confronted also with Collings's person-orientation questionnaire (Fryer & Collings, 1991), using a sample of opportunity of 40 students. As neither the correlations, nor other type of analysis made, revealed any relationship between both instruments, the latter one was not included in this study. Also, Fiedler's (1967) LPC questionnaire was considered, but given the fact that it is a self-rating instrument (the subjects have to rate the colleague that they liked least to work with), it was not appropriate to this study.

CHAPTER SIX

PROCEDURE

Even though there were some differences, according to the specificity of the school considered (here reported), the general procedure was to obtain the authorisation of the board, administer the questionnaires to students and faculty, obtain the list of lecturers considered creative, interview them and observe their classes.

To explain how that was done, as well as the composition of each sample, is the purpose of this chapter

General Procedure

Each School was approached first by letter (Appendix F) addressed to its principal, requesting permission to carry out the research and asking for an interview with the Board; this letter was accompanied by a letter of recommendation from the Principal of the IPL.

In every School its Principal provided me with all the necessary conditions, and granted me the permission to do what was needed. In the interview with the Board, elements about the School's history and ethos were obtained, as well as about its particular organisation and functioning, staff composition, courses and students; the majority of the schools had written materials about these subjects, which I borrowed or were given to me. In almost every School, a member of the staff was designated to help me, especially in the reception and handling of the questionnaires given to the academic faculty.

Each faculty member received a questionnaire together with a letter (Appendix H) explaining its content and purpose, as well as stressing the confidentiality of the data collected, and asking the subject to fill in the questionnaire and hand it in at a specific place or to a specific person (normally the one helping me), depending on the School, inside the envelope provided. Each envelope, containing the letter and the questionnaire, was placed in the mail box of each lecturer, or distributed personally, depending on the School.

Besides the ESCS, all data collection was done between January and November of 1998. In every School, about a month after the handing in of the questionnaires, a second envelope was distributed to every faculty member (or just to the ones who had not returned the questionnaire, if the names had been checked), containing another sample of the questionnaire and another letter (Appendix I), renewing the same request to those who, for any reason, had not returned the questionnaire the first time.

Meanwhile, the chairman of each Students' Association was approached, in order to explain the purpose of the research, and to ask for a meeting of students representative of each course and year, so that no one of the academic staff could be forgotten because there was no one in that meeting who knew him or her. The request made was to "draw up a list of lecturers considered creative as teachers, about which it was possible to obtain a consensus among the students who were present at the meeting". No definition of creativity or creative teaching was provided, nor a specific number of lecturers demanded, and in all cases considered the students did not ask further questions. The only cases where it was not the Students' Association to run the process, were: the ISEL (Engineering Institute) where, due to the large number of students, the meetings in each course were run by the Pedagogic Committee of the course considered (a sort of delegation of the School's Pedagogic Committee, in each course); and in the ESEL (Teacher Training School), due to some deficiency in the functioning of the Students' Association, the students of the Pedagogical Committee (all courses represented) were the ones who provided the list. As mentioned before, the main reason why the list was requested from the students only, was the fact that normally the teachers do not know one another's performance as teachers, nor does there exist any form of teaching assessment, as previously mentioned.

Each teacher listed was asked to provide an interview, which was recorded and lasted about half-an-hour. The questions asked coincided with the elements of the questionnaire, and were: "Why do you think you were chosen as creative by the students?", "How do you characterise a creative teacher?", "And a non-creative one?", "How do you see yourself as a lecturer?", and "How would you like to be, as a lecturer?". The process of scheduling the interviews was rather complex, as it was very difficult to find each selected lecturer, and it was necessary to obtain every home or office contact, and to book each interview by phone. The majority of the interviews took place in the School environment, but many were held in other places like restaurants, cafés, offices and even at home.

After the interviews, I attended one class of each interviewee, selected by each one of them, and registered any event, act or interaction which could fit into the scope of the investigation. The process of attending classes was interrupted after having done 16 observations, and concluding that they did not provide significant data.

As to the students, the questionnaires were administered either by colleagues who volunteered to do so, at the end or in the beginning of their classes, or by members of the students' association, who volunteered to do so, within a climate of co-operation that I found in every school, without exception. Questionnaires were administered to the students who came to the class of the lecturers who had volunteered to help the research; they were given the questionnaire without further explanation, and filled it in in an average of 20 minutes (10 minutes, for the two-column version), without asking any questions or making any remark.

As was explained previously in this text, the 30-item (Appendix E) form was used only at the ESCS, during the Pilot Study; the 16-item, four-column form (Appendix F), was used at the ESEL; the 16-item, two-column form (Appendix N) was used in the rest of the Schools. Data collected at the ESCS and ESEL provided enough evidence concerning the creative/non-creative conceptions, among students and faculty, so that the need to collect further evidence proved to be unnecessary; on the other hand, the two-column version significantly increased the expected questionnaire return rate, especially among lecturers. That is why the columns related to describing the creative and non-creative teacher were eliminated.

The Survey Sample

Before proceeding to describe the sample, according to the criteria used, a brief consideration about its selection may help to understand the whole procedure.

The Selection of the Sample

As explained during the description of the Pilot Study, the administration of the questionnaires may be very difficult, if we want to obtain a large amount of samples correctly filled in. For the faculty, the system used (mailing the questionnaires) is not the most effective, but is the most practical, and in many cases the only one possible, because it was not possible to approach each lecturer individually and to continue that approach until the questionnaire was returned. As alerted during the Pilot Study, the expected questionnaire return rate of the faculty members was very low, unless further actions were taken like, for example, sending a second letter and questionnaire, making personal requests and, above all, reducing the time necessary to fill in the form correctly.

As to the students, the problem was to "steal" some time from someone's class, so the questionnaire could be filled in and returned right away, or to hand it out to the students, expecting that the questionnaire would be returned. If, in the latter case, it was clear that the majority of the questionnaires would not be returned, the former process was rather complicated because: it was difficult to find lecturers who could spare some minutes of the class; the percentage of students present in every class varied very much and was, in general, very low; and as every class began at the same time, it would be necessary to wait for another hour to have access to another class.

These reasons, together with the fact that the only independent variable whose sample had to be representative was the condition of being a student or a lecturer of the Lisbon Polytechnic, made it impossible to obtain a stratified (for each independent variable considered) or even a random sample.

As the total population of the IPL is about 13,000 students and 900 lecturers, the corresponding representative sample, according to Christensen (1985), when a .05 confidence interval is desired, is about 370 students and 270 lecturers, respectively. The same author admits that a group of 35 subjects provides the researcher with enough variance to draw inferences, and when using an analysis of variance design with several levels of the independent variable, then 15 subjects per cell are recommended.

As the design adopted considers that, besides the fact of being a student or lecturer, inferences must be drawn about the School considered, academic degree, and years of experience teaching, in the case of the lecturers; and about course and course year, within the School context, in the case of the students; in that case, a *sample of convenience* (Henry, 1990), which has a within cell distribution of at least 15 subjects per cell, can be considered as acceptable.

Sample Composition

Based on this premises, a series of tables will be drawn up in order to explain the proportion between each cell considered and the total population existent in that cell, so that the external validity of the results may be appreciated.

Table 30. Comparison between the total population and the number of questionnaires taken as sample, of students and faculty, by each independent variable considered, at the ESCS (n=228) (*)

		SAMPLE		POPULATION		%SAMPLE/POP.	
Variables	Variable label	Students	Lecturers	Students	Lecturers	Students	Lecturers
SEX	Male	77	9	267	37	28	24
	Female	129	13	445	45	28	28
COURSE	Public Rel.	122	n.a.	341	n.a.	35	n.a.
	Marketing	84		371		22	
YEAR	1st year	80	n.a.	313	n.a.	25	n.a.
	2nd year	70		226		30	
	3rd year	56		173		32	
Exper. teaching (years)	3 or less	n.a.	5	n.a.	12	n.a.	41
	10 or more		10		20		50
	Average		10		11		
Academic degree	PhD	n.a.	0	n.a.	0	n.a.	0
	Master's		6		17		35
	"Licenciatura"		15		57		26
	"Bacharelato"		1		8		13
Total		206	22	712	82	28	26

(*) All data refer to the school year of 1996-97

The first one (Table 30), indicates sample and population figures of students and faculty of the School of Advanced Media Studies (ESCS), where it can be seen that the sample percentage lies around one third to one fourth of the correspondent population of the independent variable considered.

Table 31 deals with data from the Teacher Training School, containing a similar proportion to the previous Table, but data pertaining to students of Music Education and Visual and Technological Education Courses, which are under-represented, as well as the few male students in the School.

Table 31. Comparison between the total population and the number of questionnaires taken as sample, of students and faculty, by each independent variable considered, at the ESEL (n=182) (*).

		SAMPLE		POPULATION		%SAMPLE/POP.	
Variables	Variable label	Students	Lecturers	Students	Lecturers	Students	Lecturers
SEX	Male	6	12	70	23	9	52
	Female	151	13	570	49	30	26
COURSE	Primary Ed.	23	n.a.	116	n.a.	20	n.a.
	Port.-French	42		117		36	
	Port.-English	25		112		22	
	Mat.- Science	45		139		32	
	Music Ed.	6		88		7	
	Visual/Tech.	10		68		15	
YEAR	1st	89	n.a.	350	n.a.	25	n.a.
	2nd	33		162		20	
	3rd	35		128		27	
Exper. Teaching (years)	3 or less	n.a.	2	n.a.	7	n.a.	28
	10 or more		19		62		30
	Average		21		20		
Academic degree	PhD	n.a.	5	n.a.	10	n.a.	50
	Master's		17		49		35
	"Licenciatura"		3		11		27
	"Bacharelato"		0		2		0
Total		157	25	640	72	24	34

(*) All data refer to the year of 1998

Care must be taken not to interpret teaching experience as indicating the age of teachers, because the great majority of the lecturers from the ESEL began as primary and secondary school teachers, and so they have accumulated many more years of teaching experience than the average lecturer of the other Schools.

As to the School of Administration and Accountancy (ISCAL), the proportion between the sample and the population of students is much smaller than in the previous cases, as shown in Table 32, given the large number of students. It is interesting to note that the proportion correspondent to each value of the variables related to the students has almost equal cells: this is due to the way data was collected. As this School had two daily "shifts", and the filling in of the questionnaires was difficult to obtain, the Students' Association volunteered to do the job, and they did it so well that 10% of the students in each year returned the questionnaire correctly filled in, as had been requested by the researcher.

Table 32. Comparison between the total population and the number of questionnaires taken as sample, of students and faculty, by each independent variable considered, at the ISCAL (n=263) (*).

		SAMPLE		POPULATION		%SAMPLE/POP.	
Variables	Variable label	Students	Lecturers	Students	Lecturers	Students	Lecturers
SEX	Male	109	34	808	159	13	21
	Female	110	10	1498	54	7	19
COURSE	Adm. and Accountancy	219	n.a.	2,306	n.a.	9	n.a.
YEAR	1st	69	n.a.	730	n.a.	9	n.a.
	2nd	72		796		9	
	3rd	78		780		10	
Exper. Teaching (years)	3 or less	n.a.	0	n.a.	3	n.a.	0
	10 or more		35		153		22
	Average		14		13		
Academic degree	PhD	n.a.	0	n.a.	0	n.a.	0
	Master's		10		19		53
	"Licenciatura"		34		194		18
	"Bacharelato"		0		1		0
Total		219	44	2 306	213	9	21

(*) All data refer to the school year of 1997-98

Table 33 indicates the data pertaining to the Dance School, and while showing similar proportions to the other ones, the fact that it has so few lecturers produced too small a cell to allow to draw any conclusions. Also the fact that it exhibits a sample percentage greater than the population percentage of the faculty with a master's degree, indicates that the data provided to the researcher, related to this subject, had probably not been updated.

Table 33. Comparison between the total population and the number of questionnaires taken as sample, of students and faculty, by each independent variable considered, at the ESD (n=43) (*).

		SAMPLE		POPULATION		%SAMPLE/POP.	
Variables	Variable label	Students	Lecturers	Students	Lecturers	Students	Lecturers
SEX	Male	7	4	15	8	46	50
	Female	30	2	79	10	38	20
COURSE	Dance	37	n.a.	94	n.a.	39	n.a.
YEAR	1st	23	n.a.	50	n.a.	46	n.a.
	2nd	8		21		38	
	3rd	6		23		26	
Exper. Teaching (years)	3 or less	n.a.	0	n.a.	2	n.a.	0
	10 or more		6		10		60
	Average		17		13		
Academic degree	PhD	n.a.	0	n.a.	0	n.a.	0
	Master's		4		3		133
	"Licenciatura"		2		12		16
	"Bacharelato"		0		3		0
Total		37	6	94	18	39	33

(*) All data refer to the school year of 1998-99

As to the Music School, shown in Table 34, it was very difficult to find classes with a significant number of students, and so with a little help from the student's association, it was possible to obtain some more data, although not proportional to the number of students in each year.

Table 34. Comparison between the total population and the number of questionnaires taken as sample, of students and faculty, by each independent variable considered, at the ESML (n=68) (*).

		SAMPLE		POPULATION		%SAMPLE/POP.	
Variables	Variable label	Students	Lecturers	Students	Lecturers	Students	Lecturers
	Male	26	12	70	41	22	29
SEX	Female	15	5	79	12	32	12
COURSE	16 courses	51	n.a.	169	n.a.	30	n.a.
	1st	18		80		23	
YEAR	2nd	24	n.a.	46	n.a.	52	n.a.
	3rd	9		43		21	
Exper.	3 or less		0		2		0
teaching	10 or more	n.a.	17	n.a.	39	n.a.	44
(years)	Average		6		14		
	PhD		0		2		0
Academic	Master's		1		2		50
degree	"Licenciatura"	n.a.	6	n.a.	8	n.a.	75
	"Bacharelato"		10		39		26
Total		51	17	169	53	30	32

(*) All data refers to the school year of 1998-99

Table 35 indicates the data pertaining to the Theatre and Cinema School (ESTC). Again, the percentage of lecturers with a master's degree in the population seems wrong; also the reduced cell will probably cause some problems during statistical calculations. Even though there may not be so many lecturers with only the "Bacharelato" degree as shown in the Table, it must be understood that the education of a musician does not follow the same pattern as in science courses, as it is normally done by studying with great masters, instead of obtaining academic qualifications. The proportion between the sample and the population remains between one third and one fourth, as in the previous cases.

Table 35. Comparison between the total population and the number of questionnaires taken as sample, of students and faculty, by each independent variable considered, at the ESTC (n=43) (*).

		SAMPLE		POPULATION		%SAMPLE/POP.	
Variables	Variable label	Students	Lecturers	Students	Lecturers	Students	Lecturers
	Male	36	7	95	32	38	23
SEX	Female	31	2	108	11	29	9
	Actor	35		133		26	
COURSE	Cinema	31	n.a.	70	n.a.	44	n.a.
	1st	37		70		53	
YEAR	2nd	13	n.a.	86	n.a.	15	n.a.
	3rd	17		47		36	
Exper.	3 or less		0		3		0
teaching	10 or more	n.a.	9	n.a.	33	n.a.	27
(years)	Average		16		17		
	PhD		0		4		0
Academic	Master's		4		4		100
degree	"Licenciatura"	n.a.	2	n.a.	10	n.a.	4
	"Bacharelato"		3		25		0
Total		67	9	203	43	33	21

(*) All data refers to the school year of 1998-99

The Engineering School is represented in the last table of this series (Table 36), and contains the particularity of being the only School with a majority of male population as students (even though not in Chemical and in Civil Engineering). As the numbers were very high, it was decided not to collect an equally representative number of students, after having obtained a group similar to the lecturers. That is why the sample does not exceed 3% of the total population of students, while the faculty goes up to 28%.

Table 36. Comparison between the total population and the number of questionnaires taken as sample, of students and faculty, by each independent variable considered, at the ISEL (n=237) (*).

		SAMPLE		POPULATION		%SAMPLE/POP	
Variables	Variable label	Students	Lecturers	Students	Lecturers	Students	Lecturers
SEX	Male	81	90	2 366	323	3	26
	Female	34	32	1 578	108	2	37
COURSE	Civil	48	n.a.	1 028	108	4	n.a.
	Chemical	46		573	79	8	
	Communic.	1		767	88	0	
	Mechanical	1		935	89	0	
	Electricity	19		641	67	3	
YEAR	1st	12	n.a.	1 211	n.a.	1	n.a.
	2nd	66		1 331		5	
	3rd	37		1 404		2	
Exper. Teaching (years)	3 or less	n.a.	19	n.a.	67	n.a.	28
	10 or more		72		282		26
	Average		103		14		
Academic degree	PhD	n.a.	7	n.a.	18	n.a.	39
	Master's		30		99		30
	"Licenciatura"		78		304		26
	"Bacharelato"		7		10		70
Total		115	122	3 994	431	3	28

(*) All data refers to the school year of 1998-99

Summary of the sample description

As shown in Table 37, the number of students and faculty in the sample is more than enough to support any findings that may arise concerning differences between these populations, together with the variable "Sex" in students (lecturers would need 155 more subjects to be representative). In accordance with Christensen (1985), when a .05 confidence interval is desired, the total number of students and faculty is large enough to meet the requirements. As to other variables, every one of them contains enough subjects within each cell to draw representative conclusions, but not at the 0.5 confidence level, even though the variable

"Course year" falls short of the required minimum (the second year would need 50 more subjects, and the third, 100 more). Nevertheless, care must be taken in drawing similar conclusions when the variables are cross-tabulated. For example, "lecturers within Schools" may produce problems in the ESD and the ESML; "students within courses, per year", may have low representation in many cases.

Table 37. Comparison between the total population and the number of questionnaires taken as sample, of students and faculty, by each independent variable considered (n = 1 097).

		SAMPLE		POPULATION		%SAMPLE/POP.	
Variables	Variable label	Students	Lecturers	Students	Lecturers	Students	Lecturers
SEX	Male	342	168	3 771	645	9	26
	Female	507	77	4 297	267	12	29
	ESCS	206	22	712	82	29	27
	ESEL	157	25	640	72	25	35
	ISCAL	219	44	2,306	213	9	21
SCHOOL	ISEL	115	122	3,944	431	3	28
	ESD	37	6	94	18	39	33
	ESTC	67	9	203	43	29	21
	ESML	51	17	169	53	30	32
	1st	328		2 804		12	
YEAR	2nd	286	n.a.	2 666	n.a.	11	n.a.
	3rd	238		2 598		9	
Exper.	3 or less		17		94		18
teaching	More than 10	n.a.	83	n.a.	599	Not appl	14
(years)	Average		14		14		
	PhD		12		34		35
Academic	Master's	n.a.	72	n.a.	193	Not appl	37
degree	"Licenciatura"		140		597		23
	"Bacharelato"		21		88		23
Total		852	245	8 068	912	11	27

Subjects interviewed and observed

Following the procedure already described in Chapter One, the Students' Associations, or Pedagogical Committees, of the several Schools presented a list of lecturers they considered creative. Although in some of the Schools the proportion was higher than the average, in each one of them about 7% of the lecturers were selected as examples of creative teaching, thus giving a total of 62 in 912 possible cases. The percentage varied from 19 %, at the Teacher Training School, to less than 3%, at the ISCAL, as reported in Table 38.

As it was not essential to interview all of them, it was decided to use up to six subjects per school. The selection of lecturers to interview, was based on their availability, on the diversity of the subjects taught, and on priorities defined by the students who had made the list. In the end, 26 interviews were done, recorded and analysed to be included in a separate results chapter.

Table 38. Total population of lecturers, lecturers selected by the students and number of lecturers interviewed and observed (class performance), in each School

SCHOOL	POPULATION	SELECTED	INTERVIEWED	OBSERVED
ESCS	82	4	4	4
ESEL	72	13	5	3
ISCAL	213	5	1	1
ISEL	431	20	5	0
ESD	18	4	3	2
ESTC	43	10	5	5
ESML	53	6	3	3
TOTAL	912	602	26	18

The performance in class of 18 of the subjects who were interviewed was also observed, as shown in Table 38. The observation of classes was interrupted, owing to the fact that after a while it no longer provided relevant data for this research. Some priority was given to art classes, as they were supposed to differ greatly from normal science classes.

Comparing the total of the subjects listed with the whole population of the IPL, one can see that the number of lecturers that the students consider to be creative is very low, especially in Schools with large numbers of students and lecturers, like the ISCAL and the ISEL.

The only situation with a comparatively large number of selected faculty was in the ESEL (Teacher Training School), with 19%, which is a good indicator of the kind of academic staff who are in charge of training new teachers. Nevertheless it is necessary to remember that, in this case, the list was made by the Pedagogic Committee, which includes members of the faculty, and not only by the students, as in the other Schools. Interesting to stress is that none of the groups that were approached, in order to provide a list, asked any question about the meaning of creative teaching, or the quantity of lecturers required.

The subjects selected will be characterised in the second results chapter.

The Administration of the Interviews

As stated in Part II (Method), Chapter One, the interviews aimed at enlarging the scope of this research, by providing substantial descriptions of styles from lecturers considered creative by the students.

As mentioned during the theoretical considerations, the interviews were run as "conversations with a purpose", as an opportunity for discussion of subjects of interest to both the interviewer and the interviewees.

As the interviews were aimed at broadening the understanding of the elements included in the research questionnaire, there were asked four questions: : "Why do you think you were chosen as creative, by the students?", "How do you characterise a creative teacher?", "And a non-creative one?", "How do you see yourself as a lecturer?", and "How would you like to be, as a lecturer?". As the interviews progressed, it became clear that the first question provided most of the answers, because every subject felt the need to present views about creativity in teaching (comparing it with the absence of creativity), as well as about his or her practice and style, thus eliminating the need for the further three questions. Sometimes, the last question ("How would you like to be, as a lecturer?") was asked at the end of the interviews, as well as another question ("Till now you have presented your views about your way of teaching. What about the kind of relationship that you maintain with your students"), if the relationship aspect had not been covered enough during the interview.

In every School, the subjects selected by the students were approached individually, and after a brief presentation, they were told the scope of the investigation and the aim of the interviews, as well as the fact that they had been selected as examples of creative teaching by the Students' Association, and asked to provide an interview. The time and place were selected by the interviewees, confronted with the requirements of a place free from all types of interference, where tape recording would be possible, and the fact that the interview would last for about one hour. All of them revealed surprise in the selection, but felt proud of having been chosen by the students, and appeared highly motivated to do the interview.

Before beginning the interview they were told about the recording and the confidentiality of the conversation, and there was preliminary conversation about the subject of the investigation in order to create empathy with the interviewer. Personal data was collected (name, past experience, years of experience teaching, academic degrees and interests) prior to the start of the interview.

Every interview was done by the author of this research.

During the conversation, efforts were made to provide the interviewee with the impression that the interviewer was really interested in the discourse, and appropriate techniques were used according to the person interviewed.

After the interview, each subject was requested to provide an opportunity for the researcher to observe his or her performance in class, in order to complete the data collected during the interview. They were also requested to fill in the questionnaire, even though they could have done it when their School had been subjected to the survey. Nevertheless, as in the majority of the Schools, the interviews were done several months after the survey, many of the interviewees had only a vague idea of the questionnaire, which did not seem to interfere with the contents of the interview. The questionnaires that were filled in after the interviews were used to other purposes than the ones resulting from the survey, as explained later in the text.

The interviews lasted between 30 and 90 minutes, and, in many cases, a conversation about aspects related to the subject of the interview followed the turning off of the tape recorder.

The Administration of the Observations

By observing classes of the subjects interviewed it was thought possible to find matches and mismatches between their performance and conceptions, as well as understanding the kinds of teacher behaviour that students regard as creative. Observing different classes, in different subjects, from sciences to arts, was also thought to provide the researcher with a deeper understanding of the teaching universe under consideration.

Under this purpose, the fact that the opportunity for observation was determined by the subject, and not by the researcher, was of minor importance, as it was not the intention of the observation to provide elements for an assessment of any kind, but just to complement the interview. The fact that the lecturer could behave in a way somewhat different from the one normally adopted in class, in an attempt to cause a good impression upon the observer, was also of minor importance, as the judgement of considering the subject as an example of creative teaching had already been made by the students.

Nevertheless, after some class observations and registrations, it became clear that the pattern was repeating itself, as there were no specific method or class materials, and that everything was based on good communication between students and faculty, as will be described later in this text.

As the method of observation was the simple *naturalistic method*, the observer limited himself to watching, without interfering, and to taking occasional notes during the observation period. Before the beginning of each class, the researcher was generally introduced to the students (in some cases, not), and the reason to his presence was explained, as well as the confidential nature of the data collected; after that the researcher would normally choose a seat at the back or on the side of the class, distant from the rest of the students and, if possible, where he could not be seen by them, and remained silent till the end of the class. The observation lasted for the whole class, which lasted from 50 minutes to two hours. Some of the lecturers asked the researcher to state his purpose and preliminary findings at the end of the class period.

The notes taken were related mainly to acts performed by the lecturer, such as verbal explanation, showing slides, performing tasks, telling jokes, and acts performed by the students: asking questions, group discussion, taking initiatives. Especial attention was given to opportunities for interaction, and to any action considered as deviant from the normal lecture-type method of teaching, as well as to the confirmation of the aspects collected during the interview that could be appreciated in such a short period of time. The time mediating between each interaction was registered.

The observation record was anchored to a time scale, within which each of the events pertaining to the listed categories was registered, and described when original or when showing a particular impact on class interest or moment of learning.

The observation records were later compared against the previous interview statements to detect similarities and oppositions.

PART III - RESULTS AND DISCUSSION

As previously mentioned, this research aims at comparing views of creativity and effectiveness in teaching, between students and lecturers, in higher education. The study took place within the polytechnic environment, where a sample of 1,097 lecturers and students of undergraduate courses, in the seven polytechnic Schools of the *Instituto Politécnico de Lisboa* (IPL) [Lisbon Polytechnic Institute], was drawn from more than 900 lecturers and 8,000 students. From these Schools, samples were drawn in order to have students and lecturers in each of the independent variables chosen (students: School, nature of the course, course year, and sex; lecturers: sex, experience, School, nature of subjects taught, and academic level). Following an initial qualitative approach, questionnaires (based on personal construct theory, and built according to the repertory grid rationale) were administered in the Schools chosen, in accordance with sampling criteria. Interviews of lecturers, as well as direct observation of examples of creative teaching, were made to complement quantitative data.

This part will include a first chapter on the analyses of quantitative data provided by the questionnaires. For each proposition formulated, a series of analyses will follow, until it is possible to accept or reject it. A second chapter will contain the descriptions obtained in the interviews and observations, and will serve as an illustration of what creative teaching really is, in the words of those who are seen as vivid examples of creativity in teaching. This chapter will include the results of a correspondence analysis to some of the interviews, in order to draw a perceptual map of the discourse of the teachers considered creative.

Chapter Three will be dedicated to the discussion and conclusions of this research, starting with the discussion of the aims and objectives defined against the results obtained, going on to general and specific limitations of the study and the research instruments, and ending with the conclusions and proposals for future research

CHAPTER ONE

QUESTIONNAIRE DATA

This chapter describes the responses of the total sample of students and lecturers to the main survey questionnaire, in the extent supported by each one of the five defined propositions.

It has two main sections: one concerning the characterisation of the concept of "creative" and of "non creative" teacher; another related to the way the subjects see themselves as teachers (Real), and how they would like to see themselves as teachers (Ideal).

Each section presents the metric characteristics of the instrument that were calculated, proceeding then to the analyses of variance correspondent to each one of the propositions defined in Part I, Chapter Four. These analyses will go from the global survey to each individual group considered.

In addition, Chapter Two will include the results of the interviews and observations, complementing of the quantitative analyses expressed in this chapter.

As described in the preceding chapter, the complete 17-item questionnaire (16 items plus item number 7 – "Corresponds to my ideal of teacher"), containing four elements (columns), was administered only at the ESCS, in the Pilot Study, and at the ESEL, using the latest version of the instrument (Appendix F). The decision to eliminate the two elements pertaining to the description of the creative/non-creative teacher (and item number 7), in the remaining Schools, was taken at the ESEL, in an attempt to increase the low return rate, so that the returning probability of a half-sized questionnaire could be enhanced, together with the assumption that the data already collected was enough to sustain the first proposition.

As already mentioned, the items of the questionnaire were divided into two subscales (summated scales), one referring to task aspects, and the other to relationship aspects of teaching. From the discussion held during the literature review it was possible to draw a connection between the *task* aspects of the questionnaire and the concept of *effective teaching*, and between the *relationship* aspects and the concept of *creative teaching*. As earlier explained, these designations (task/effective teaching; relationship/creative teaching) will be used interchangeably in the remaining investigation.

The Concepts of Creative Teaching and Non-Creative Teaching

This section will include only the first proposition, the results of which will be presented after the description of the metric characteristics of the instrument, in its two first elements.

Descriptive Analysis

Remembering that the closer the score is to 1.00, the closer it is to an agreement with the creative/effective teaching concept, a series of analyses were made to appreciate the general characteristics and distribution of the results.

As shown in the standard deviation values expressed in Table 39, all of the items in the questionnaire revealed a good discriminating power (every item was scored between 1 and 5, in both elements), thus expressing the ability of the instrument to separate different views of creative and effective teaching; the total item mean scores ranged between values of 1.00 and 3.48 ("More creative teacher" element), and between 1.44 and 4.81 ("Less creative teaching" element).

The "non-creative" distribution revealed a standard deviation larger than the "creative" one, thus indicating more dispersion of opinions concerning the characterisation of the less creative teacher, in comparison with the more creative one.

Each item mean and the total item mean are in accordance with the construction of the element considered, as every item value in the "more creative" is below 3.00, while it is above that value in the "less creative" element. Items 1, 10, and 17, have the smallest differences between elements, but always statistically significant, which means that both conceptions (creative and non creative teaching) mean different things to the subjects, as far as every listed behaviour is concerned. Besides item 7, which is not an effect variable, item 5 ("Makes students like the subject through interesting activities") has the lowest score in the first element, and the bigger mean difference between both elements, which makes it a good tool to discriminate between both types of teaching. Items 3 ("Creates a playground where everything can be learned"), 4 ("Unable to teach a lesson he or she has not prepared"), and 8 ("Creates analogies to explain the subject matter"), also show substantial differences between elements.

Table 39. Descriptive analysis of results, indicating the mean (x), and standard deviation (s), obtained in each item and in the total mean, by the whole sample (n=396), in the first two elements, and the mean difference between them.

ITEM	Rev. (*)	A - More creative teacher		B - Less creative teacher		Diff. B-A
		x	s	x	s	x
1 The students receive high marks		2.30	.90	3.32	.88	1.02
2 Discusses controversial subjects with students		1.59	.75	3.52	1.06	1.93
3 Creates a playground where everything can be learned		1.72	.89	3.76	.94	2.04
4 Unable to teach a lesson he or she has not prepared	R	1.85	1.17	3.56	1.22	1.71
5 Makes students like the subject through interesting activities		1.35	.68	3.70	1.05	2.35
6 Takes students to visit places		1.81	.91	3.40	1.05	1.59
7 Fits in with my ideal of a lecturer		1.51	.78	4.27	.94	2.76
8 Creates analogies to explain the subject matter		1.64	.86	3.73	1.12	2.09
9 Teaches boring lessons	R	1.59	.87	3.85	1.10	2.26
10 The subject matter helps students to solve problems		2.03	.92	3.02	1.06	.99
11 Promotes team work		1.68	.96	3.13	1.12	1.45
12 Very observant of the surrounding world		1.62	.83	3.12	1.14	1.44
13 Limits himself or herself to reality	R	2.03	.98	3.67	1.06	1.64
14 Never gives practical examples	R	1.55	.91	3.10	1.21	1.55
15 Distant from students	R	1.78	.95	3.33	1.16	1.55
16 Creates a friendly relationship with the students		1.93	.97	3.11	1.07	1.18
17 Identifies the students with friendly nicknames		2.79	1.10	3.58	.99	.79
Mean score		1.82	.43	3.39	.59	1.57

(*) This indicates the items that were scored as reverse (R)

The items were scored with less dispersion in the "More creative" element, rather than in the "Less creative", which points to more consistency in the idea that people have of the creative/effective teacher, rather than the non - creative/ineffective one.

The average difference between scores of the elements is substantial, even though the mean of the first element is closer to the absolute creative pole (score 1) rather than the less creative is to the non-creative pole (score 5), this meaning that the less creative teacher is considered by the subjects as showing some creativity (and effectiveness); in other words, they do not consider that there can be any kind of teaching without having at least some creativity (and effectiveness), and that the creative/non-creative teaching conceptions may not be truly opposites in many aspects.

This assumption is reinforced by the fact that item 7 ("Fits into my ideal of teaching") is the one with a bigger difference between means, in both elements, which can be interpreted as a true preference for the creative teaching conception, while rejecting the non-creative one. As shown in Table 40, 85% of the subjects scored 1 or 2 in this item, reporting to the creative teaching conception, and 4 or 5 in the non creative one, meaning the acceptance of the former while rejecting the latter. Nevertheless, when these scorings are compared with the associated mean in the whole questionnaire, the correspondence between preference for creative/non creative teaching, and that same opinion, expressed in the scores given to the items of the questionnaire, which represent different aspects of the same thing, was not fully coincident.

Table 40. Crosstabulation of scores given to item 7 ("Corresponds to my ideal of a teacher"), in the first two elements (7A - "More creative teacher", and 7B - "Less creative teacher").

		ITEM 7B			
	Score	5	4	3	Subjects
ITEM 7A	1	174(*)	41	20	235
	2	35	49(*)	22	106
	3	6	1	22(*)	30
Subjects (*)		215	91	65	371

(*) The difference between every diagonal score is significant to the p<.01 level (Pearson chi-square)

As expressed in Table 41, while the item mean score corresponding to extreme values on item 7 (174 subjects) is the smallest of the three groups considered, in the creative teaching element, the opposite is not the case in the less creative one, as it is the group with the combination of scores 2 and 5 that corresponds to the highest value, and not 1 and 5, as it should be. This may mean, as described in the *Instrument* chapter, that both scores (7A and 7B) are relatively independent, and that both kinds of teaching are not true opposites.

Also that the learned social acceptance of "creative teaching" may lead some people to view it as a good thing, based on the given stereotype, but not forcefully to agree with each one of its aspects, when faced with real examples.

Table 41. Mean scores corresponding to extreme values given to item 7 ("Corresponds to my ideal of a teacher"), in the first two elements (A - "More creative teacher", and B - "Less creative teacher"), and its significance level (n=299).

Score association of item 7A and 7B	Number of subjects	More creative	Less creative
1-5	174	1.69	3.62
1-4	41	1.84	3.15
2-5	35	1.89	3.67
2-4	49	1.98	3.46
Overall significance		.00(*)	.00(**)

Scheffe test:
(*) Group 1-5 differs from the group 2-4 at p<.00
(**) Group 1-4 differs from the other groups at p<.01

Next, a correlational analysis was done, comparing the scores of the "More creative teacher" element within the correspondent ones of the "Less creative" one. As expressed in Table 42 these correlations are negative and substantial, thus showing the opposition between both concepts, but, as expressed before, not every item correlates negatively, or in statistically significant terms with its opposite, thus showing that some of the items are relatively independent of the opposition creative/non creative, and are therefore particularly appropriate to characterise creative teaching. This is the case of items number 2, 3, 6, 8, 11 and 17.

Table 42. Pearson's Coefficients of Linear Correlation within and between the items of "creative teacher" element and the correspondent ones of the "less creative teacher" element (n=396).

		Within "More creative teacher"																
	Between items	1	2	3	4	5	6	8	9	10	11	12	13	14	15	16	17	Total score
Within "Less creative teacher"	1	-.14	.16	.25	.01	.25	.31	.28	.14	.15	.11	.13	.14	.00	.10	.23	.16	.43
	2	.24	-.05	.23	.08	.29	.24	.27	.20	.20	.23	.26	.16	.20	.27	.20	.15	.51
	3	.24	.45	-.05	.12	.22	.31	.20	.19	.13	.19	.23	.18	.12	.16	.20	.16	.50
	4	.14	.31	.25	-.31	.10	.09	.09	.06	.25	.13	.11	.10	.25	.19	.15	.12	.40
	5	.18	.39	.40	.28	-.11	.33	.31	.19	.23	.17	.24	.11	.24	.21	.23	.05	.50
	6	.14	.37	.32	.18	.43	-.00	.28	.18	.31	.13	.16	.18	07	.16	.21	.13	.52
	8	.23	.23	.18	.12	.31	.33	-.08	.10	.18	.25	.32	.17	.21	.27	.30	.08	.54
	9	.04	.26	.28	.13	.38	.24	.34	-.22	.08	.23	.22	.12	.18	.20	.14	.08	.42
	10	.09	.26	.18	.29	.35	.31	.11	.05	-.23	.12	.31	.20	.28	.28	.24	.14	.53
	11	.09	.20	.14	.10	.25	.32	.33	.33	.15	-.04	.39	.17	.11	.21	.27	.09	.48
	12	.09	.33	.29	.26	.37	.38	.36	.37	.26	.34	-.13	.24	.26	.29	.29	.12	.57
	13	.12	.27	.21	.19	.22	.23	.08	.20	.22	.16	.34	-.29	.20	.12	.08	.08	.42
	14	.10	.30	.22	.17	.26	.27	.25	.33	.23	.32	.26	..30	-.11	.34	.19	-.00	.47
	15	.17	.37	.23	.27	.32	.28	.19	.28	.38	.20	.37	.34	.46	-.21	.43	.09	.56
	16	.12	.36	.23	.21	.33	.31	.23	.23	.29	.22	.33	.21	.30	.57	-.11	.19	.56
	17	.06	.16	.19	.15	.15	.23	.04	.08	.15	.09	.21	.23	.01	.18	.29	.06	.36
	Total score	.33	.63	.54	.48	.65	.61	.50	.53	.51	.50	.65	.50	.57	.66	.61	.36	-.32

(*) All correlations equal to or above .11 are statistically significant to p<.01

The Table indicates substantial correlations within the items of each element, even though the correlations within the "Less creative" are more substantial. This way, even with more dispersion of opinions (greater standard deviation) concerning the non creative, they are more consistent in defining the concept, as if it was easier to define the absence of creativity rather than its presence.

Within the "More creative" element, items 12 ("Very observant of the surrounding world"), 15 ("Distant from students"), and 16 ("Creates a friendly relationship with the students"), seem the ones that contribute better to the element consistency, while items 9 ("Teaches boring lessons"), 13 ("Limits himself or herself to reality"), 15 and 16, contribute less; items 11 ("Promotes team work") and 12 ("Very observant of the surrounding world"), 14 (Never gives practical examples") and 15 ("Distant from students"), are closely interrelated, which may reveal interesting associations. As to the "Less creative element", items 2 ("Discusses controversial subjects with the students"), 5 ("Makes students like the subject through interesting activities"), 6 ("Takes students to visit places"), 12 ("Very observant of the surrounding world"), 15 and 16, are the ones that reveal higher item-total correlations, while items 1 ("The students receive high marks") and 17 ("Identifies the students with friendly nicknames") show the lowest correlations. The following pairs of items also correlate highly: 2 ("Discusses controversial subjects with students") and 5 ("Makes students like the subject through interesting activities") with 3 ("Creates a playground where everything can be learned"); 4 ("Unable to teach a lesson he or she has not prepared") and 6 ("Takes students to visit places"); 14 and 16 with 15; also interesting the lack of correlation between item 17 and 14, in both elements, which is a unique case.

Following the correlational analysis, an exploratory factor analysis was made, to see if the distribution of the items between the two subscales considered during the pilot study was still coincident, now that the subjects of the ESEL were added to the sample. The results are expressed in Table 43.

Table 43. Loadings of each of the 16 items, in each factor considered, taken from ratings in each element, after varimax rotation. (n=396).

	More creative teacher		Less creative teacher	
	FACTORS (% of variance explained)			
Item Nm	Relation (24%)	Task (9%)	Relation (30%)	Task (9%)
1	**.70**	-.11	**.25**	.18
2	**.43**	.33	**.58**	.33
3	**.57**	.12	**.47**	.31
5	**.51**	.27	**.46**	.48
6	**.67**	.07	**.42**	.47
8	**.50**	.31	**.01**	.72
16	**.37**	.45	**.60**	.26
17	**.34**	.05	**.51**	.07
4	-.05	**.51**	.56	**.05**
9	.31	**.27**	.09	**.70**
10	.23	**.52**	.63	**.05**
11	.30	**.39**	.04	**.68**
12	.31	**.56**	.40	**.54**
13	.25	**.30**	.51	**.16**
14	-.05	**.71**	.31	**.50**
15	.15	**.66**	.65	**.28**

As may be seen, the items do not load exactly into the same factors, in both elements, as expected. Comparing the distribution and loadings with the pilot study, the relationship factor has become the one with a greater percentage of explained variance, instead of the task factor, and the adjustment of the "Less creative" element has become slightly worse. Because of that, and given the fact that the distribution of the items between both factors was not far from the theoretical perspective, a confirmation of the two-factor model proposed in the preceding chapter was drawn up, using the two previously defined summated scales (subscales) with the respective pool of items: task subscale, with items number 4, 8, 9, 10, 12, 13, 14 and 15; relationship subscale, with items number 1, 2, 3, 5, 6, 11, 16 and 17. The results of the confirmatory factor analysis, with two correlated factors, are shown in Table 44.

As the Table shows, the overall measures have improved the model's fit, comparative to the pilot study sample, and, according to standards defined by Hair, Anderson, Tatham & Black (1987), and Long (1983), they indicate that the two-factor model provides a good fit of the data to the sample (GFI and AGFI greater than .90; RMSEA between .05 and .08; and Pop. Gamma Index higher than .95).

As in the case of Table 20 (Pilot Study), the Chi-square statistic was significant, indicating differences between actual and predicted matrices, and thus a poor model fit. Nevertheless, as Sharma (1996) advises, and Schumacker & Lomax (1996) corroborate, for large samples (n>200), this measure tends to become too sensitive, and researchers tend to disregard the Chi-square significance level in evaluating the model's fit.

Table 44. Single sample Fit indices of a two-factor confirmatory factor analysis, in each of the two elements

INDICES	More creative teacher	Less creative teacher
Chi-Sq. Stat.	228	252
df	103	103
GFI	.93	.93
AGFI	.91	.90
Steiger-Lind RMSEA	.06	.06
Pop. Gamma Index	.95	.95

GFI=Goodness-of-Fit Index; AGFI=Adjusted Goodness-of-Fit Index; RMSEA=Root Mean Square Error of Aproximation

To evaluate the consistency of the two factor model, a reliability analysis was performed, and the results are shown in Table 45.

Table 45. Cronbach's Alpha values for each subscale, and total score, in each element.

Subscale	More creative teacher	Less creative teacher
Task	66	74
Relationship	68	73
Total score	78	84

These values are slightly lower than those collected during the Pilot Study, which was expected given the increased diversity of the subjects in the sample. If we take only the student population, the internal consistency of the instrument increases, but not significantly.

After considering the general descriptive results, and the metric characteristics of the instrument, in order to appreciate its construct validity and reliability, proposition one will start with the presentation of the analyses of variance.

Proposition One

- Students and lecturers will characterise creative teaching in similar ways.

The analyses of variance are separated between those involving the whole sample, concerning differences between students and lecturers, altogether and within Schools, and the ones related to the detection of differences among students, according to their Year, Sex, and School, as well as the respective interactions between variables; also among lecturers, examining the effects of their Academic award and School. A more detailed analysis of students within Schools, to assess the "course" influence will precede a final verification, using cluster analyses, which will end the presentation of results concerning the first proposition.

Analyses of Variance Between Students and Lecturers

Using only the two subscales, various analyses of variance were made against the predictors already established as possible influences in the effect variables.

Directly related to the proposition, both means of teachers and students, in each element and subscale, were compared, and the results are shown in Table 46.

Table 46. Difference of mean scores, between students and lecturers, in each element and subscale, and respective p-level.

Subjects	Nm(*)	More creative teacher		Less creative teacher	
		Task	Relation	Task	Relation
Lecturers	36	1.66	2.07	3.25	3.51
Students	360	1.77	1.87	3.36	3.42
p-level		.22	.02	.34	.41

(*) Both groups were considered to have homogenous variances, with non-significant p. values in Levene's test ranging from .22 to .55.

As may be seen, students differ from lecturers in the way they see creative teaching, stressing the importance of creative teaching relationship aspects. Non creative teaching is perceived in equal terms by students and lecturers.

Next, another analysis was made to assess whether this difference in the way perceptions of creative teaching were held, by students and faculty, was not dependent on the School considered, and the results are shown in Tables 47 and 48.

Table 47. Difference of scores, between students and faculty, in each element and subscale, and respective p-level, at the ESCS.

Subjects	Nm(*)	More creative teacher		Less creative teacher	
		Task	Relation	Task	Relation
Lecturers	22	1.63	2.15	3.21	3.45
Students	206	1.73	1.95	3.34	3.42
p-level		.33	.08	.42	.77

(*) Both groups were considered to have homogenous variances, with non-significant p. values in Levene's test ranging from .29 to .93.

Table 48. Difference of scores, between students and faculty, in each element and subscale, and respective p-level, at the ESEL.

Subjects	Nm(*)	More creative teacher		Less creative teacher	
		Task	Relation	Task	Relation
Lecturers	14	1.72	2.04	3.31	3.53
Students	154	1.82	1.90	3.40	3.44
p-level		.52	.47	.62	.60

(*) Both groups were considered to have homogenous variances, with non-significant p. values in Levene's test ranging from .50 to .87.

As these latter analyses contradicted the previous one, a multivariate analysis of variance (MANOVA) was used, including the variables "Role" and "School" as predictors, and both factors of the "More creative teacher" element, as dependent variables. The results indicate that "Role" alone produces effects in the relationship factor (Wilk's Lambda= 97; Rao's R=6.47; p<.00), and therefore indicates that students perceive the typical creative teacher as more directed to establishing relationships with them than lecturers do.

In the t-tests made, even though the groups considered did not differ within Schools, there could also exist differences between Schools, which could point to a significant separation of conceptions that both samples have, concerning creative teaching. In the case of lecturers, a different organisational culture could apply, as scientific areas are similar in both Schools; whereas the students who want to be teachers (ESEL) or enterprise professionals (ESCS) could have different perspectives about teaching, or their evolution throughout the courses could be different in each School. To verify these possibilities, a series of analyses of variance were made, to conclude that lecturers' scores between Schools were not statistically different, but those of students were.

Analyses of Variance Among Lecturers

The sample of lecturers, although relatively small, provided some possibilities of assessing differences of criterion variables, against some predictors. "School", "Years of Teaching Experience", "Sex", and "Academic Qualifications", were the possible predictors.

From these variables, only the "Academic Qualifications" provided some distinction as to the score obtained in the relationship subscale of the "More creative teacher" element, as shown in Table 49 Because there was only one subject of the sample with a PhD, only those with the "Licenciatura" and the Master's degree were considered.

Table 49. Difference of scores, between lecturers with different degrees, in each element and subscale, and respective p-level.

Academic award	Nm(*)	More creative teacher		Less creative teacher	
		Task	Relation	Task	Relation
"Licenciatura"	22	1.74	2.26	3.22	3.45
Master's	13	1.63	1.87	3.29	3.50
p-level		.53	.02	.75	.78

From Table 49 it is possible to establish a relationship between the possession of a higher academic degree and the attribution of more importance to the relationship aspects of creative teaching. Nevertheless, as the sample has no cell concerning those who are PhD, further evidence is necessary in order to draw up any conclusions.

Analyses of Variance Among Students

Given the fact that the most important differences lie among the students, it was important to verify them. As the predictors "School" and "Year" were common to the whole sample of students, and the number of courses was different in both Schools, a 2x3 MANOVA factorial design was adopted, comparing students' School, Year, and Year within the same School, as the variable "Sex" did not produce difference between means. The criterion variables adopted were "Task" and "Relationship" scores, of the "More creative teacher" element, because there were no differences within the "Less creative" element, and the existence of four dependent variables would only contribute to reduce the statistical power of the test.

As Table 50 shows, the "Year" effect, together with the "Year-School" interaction effect, both produced significant differences in the dependent variables, while the "School" effect alone did not. Also, between both criterion variables, it is the relationship element that provides more differentiation between course years, while School differences are more sensitive to the task element, among first year students.

The fact that the freshmen (first year students) have a different picture of creative teaching from the seniors, closer to its prototype, is in agreement with previous findings, as discussed in the Aims and Objectives chapter. It is also normal that the student population, who are studying to becoming teachers, at the Teacher Training School (ESEL), should be more demanding in terms of effectiveness, thus scoring lower than the first year students of the ESCS, in the task aspects of teaching. If we look at differences between third year students, we can see that there is none, which suggests that the years spent in higher education act as a sort of "standardising" effect upon the students, as to their conceptions of teaching, no matter the faculty or course considered.

Table 50. Multivariate index of differences between mean scores of Schools and year, in the "More creative teacher" element, separated in task and relationship subscales, and its p-level.

Effect	Wilk's Lambda	Rao's R	p-level
Year	.94	5.23	.00
School	.99	1.48	.23
Year x School	.96	3.29	.01

	Dependent variables	
Year	Task	Relationship
1	1.71	1.75
2	1.74	1.91
3	1.88	2.03
p-level	.05	.00 (*)
Year x School (**)		
1 1	1.56	1.71
1 2	1.87	1.80
p-level	.01	.90
2 1	1.79	2.01
2 2	1.69	1.82
p-level	.97	.63
3 1	1.90	2.04
3 2	1.87	2.03
p-level	.99	1.00

(*) Scheffe's test: 1st year differs from the others at p<.01.
(**) School labels: 1-ESCS; 2-ESEL

This fact (first year student differences, and third year similarities) are reinforced if we make an analysis of differences between courses and course years, within the same School.

As can be inferred from the previous Table, the main source of variation lies within the ESCS, where, as will be shown, the variable "course year" produces more variation among the dependent variables considered than in the case of the ESEL. At the ESEL no statistically significant differences were found between years, but it is necessary to remember that the third year sample is very small (10 subjects), and that only two courses (Portuguese/French, and Portuguese/English) have a considerable sized sample. That is why the analyses made of the predictor's "Course" influence in the dependent variable was done only within the ESCS.

As can be seen in Table 51, the "Year" variable produces the same effect detected when both Schools were put together, but now in stronger terms, as the first year students seem to see creative teaching in a different way from older students, both in task and in relationship aspects. The fact that third year students do not differ in both courses, in the relationship aspect, reinforces the idea of normalisation already expressed.

Table 51. Multivariate index of difference between courses and year mean scores in "More creative teacher element", at the ESCS, separated in task and relationship subscales, and its p-level.

Effect	Wilk's Lambda	Rao's R	p-level
Course	.96	4.38	.01
Year	.90	5.40	.00
Course x year	.96	1.84	.12

	Dependent variables	
Course (*)	Task	Relationship
1	1.78	1.86
2	1.73	2.00
p-level	.46	.01
Year		
1	1.56	1.71
2	1.79	2.01
3	1.87	2.04
p-level	.00 (**)	.00(**)

(*) Course label: 1-Public Relations; 2-Marketing & Publicity
(**) Scheffe's test: 1st year differs from the others at p<.01 level

Cluster Analyses

In an attempt to devise possible profiles of scores (clusters) in creative teaching, separating high scores (less creative preference) from low scores (closer to the creative teaching profile), the idea came of trying to separate subjects according to their scorings in the 16 items. Nevertheless, as the computer program limits the number of cases and variables for which cluster analyses can take place, it was decided to base the definition of the two groups on the mean scores of the two subscales - task and relationship - in the "More creative teacher" element, only. The computer provided two groups with the number of subjects and means expressed in the Table 52, below.

Even though the difference between means does not allow us to speak about a "high" and "low" profile, as both are under 3.00, it may provide us with a deeper understanding of the way preferences for creative teaching are distributed among the various groups. It is useful to recall that in order to coincide with the theoretical construct, the creative teaching score should be close to 1.00, but even though the majority of the subjects "say" creative teaching is their ideal of teaching (Item 7 had the lowest mean of the whole questionnaire - 1.51), they are not willing to enlarge the scope of what they see as characterising this type of teaching, and so they rate some of the items less favourably.

Table 52. Cluster means (cases) and number of subjects, in each subscale of the "More creative teacher" element.

	Cluster	
	1	2
Task	2.13	1.43
Relationship	2.27	1.56
Number of subjects	186	210

The existence of different distributions of subjects pertaining to these clusters was observed in the various possible cells compared in the previous analyses. Nevertheless only among first year students, was there observed a significant difference between the cells containing subjects from each cluster: first year students of the ESCS, belonging to cluster 2, outnumber those in cluster 1 by almost two thirds (Pearson Chi Square = 6.30, p<.01), while at the ESEL both cluster groups were similar. These results confirm the findings that report differences in the characteristics of the population entering different Schools and courses, as to their images of creative teaching. In this case, the proportion of students who score creative teaching closer to 1.00, seem to be greater among those who enter the ESCS rather than among those who enter the ESEL.

Differences in students who enter different Schools are then expected to appear as an important criterion variable.

Summary of the Results Related to Proposition One

Based on these results, and according to the first proposition, it is possible to draw up a first set of findings, some of which must still be confirmed in the remaining investigation:

- Lecturers and students show differences as to their conceptions of the relative importance of the relationship aspects in a typical creative teacher, with the students stressing it more than teachers. Therefore, the proposition is not accepted.

Students seem to favour the relationship aspects more than faculty, when characterising the typical creative teacher, but the evidence is very weak (differences appear in the whole sample, but not in each School), to support this view. Students do not show themselves different from faculty in their conceptualisation of the relative importance of the task aspects (effectiveness) in creative teaching. Both actors show similar perceptions of what a typical uncreative teacher is like.

Also, the variables "Year", "Course", "School", and their respective interactions, seem to produce some variation among the dependent variables related to creative teaching, as far as students are concerned, and their effects lead to the following considerations:

- Different populations seem to have chosen these two Schools, as entry students differ in their conceptions of creative teaching, according to the School considered. This difference is more related to task aspects, which relate more closely to effectiveness in teaching, rather than to creativity.

- Different populations seem to have chosen the two courses at the ESCS, and so entry students show differences in their conceptions of creative teaching. This difference is more related to relationship aspects, which relate more closely to creativity in teaching, rather than to those related to effectiveness.

- The development of the students within the Schools seem to standardise their conceptions of teaching, in a way that, in their third year, every course reveals similar scores. Lecturers' conception of creative teaching is closer to that of third year students, rather than to those of the first year.

Besides these considerations, reported exclusively to the students, other general comments may be drawn up:

- As to the lecturers, neither the School, nor any other kind of variable seem to produce significant effects upon the criterion variables, as far as detecting different conceptions of the typical creative teacher, but those with a Master's degree seem to give more preference to the relationship aspects of

Descriptive analysis

Remembering that the closer the score is to 1.00, the closer it is to creativity and effectiveness in teaching, a series of analyses were made to appreciate the general characteristics of the distribution of results.

As in the case of the typical creative teacher concept, the standard deviation values expressed in Table 53, reveal that all of the items in the questionnaire show good discriminant power (every item was scored between 1 and 5, in both elements), thus confirming the ability of the instrument to separate different views of creativity and of effectiveness in teaching. The total item mean scores ranged between values of 1.00 and 4.25.

The distribution of scores of the "As I think I am/would be" element (real) shows a reduced standard deviation, similar to the "As I would like to be" element (ideal), thus indicating some concentration of opinions concerning the characterisation of a person's own reality and ideal. Nevertheless it must be recalled that it is the mean scores (total scores divided by 16) that are taken into consideration, and not the mean score total. If this were the case, the standard deviation would appear wider, as happens with each of the items, where its value is normally above 1.00, indicating a wider dispersion of scores than what with the ratings of creative and non creative teaching. As expected, each person's opinion about individual capabilities varies more than their concept of what a typical creative, or uncreative, teacher is.

teaching, compared with the ones with a "Licenciatura". Nevertheless care should be taken in drawing conclusions from such a small sample (n=36).

- The predictor "Sex" does not seem to produce significant variation in any of the populations studied, as to their perception of different ways to see creative teaching.

- None of the predictors considered was strong enough to detect differences between conceptions of non creative teaching.

Real and Ideal Self Perceptions of Teaching

As described in the preceding section, the complete 17-item questionnaire, containing four elements (columns), was administered only at the ESCS, in the Pilot Study, and at the ESEL, using the latest version of the instrument. Nevertheless, as the percentage of lecturers from the latter School who returned the questionnaire was very low, another attempt was made with the 16-item version (item number 7 - "Fits in with my ideal of teaching" no longer applied) of the instrument, containing only two elements: "As I think I am, as a teacher" (real), and "As I would like to be as a teacher" (ideal). This process resulted in 13 more questionnaires returned by the lecturers, which were added to the sample.

This two-element, 16-item version of the questionnaire (Appendix N), was used in the remainder of the investigation.

As in the preceding section, this one will include the remaining propositions, whose results will be presented after the description of the metric characteristics of the instrument, in its two remaining elements.

Table 53. Descriptive analysis of results, indicating the mean (x), and standard deviation (s), obtained in each item and in the task and relationship subscales, in the whole sample (n=1097), in the last two elements, and the mean difference between them.

ITEM	Rev. (*)	Real-As I think I am (would be) as a teacher		Ideal-As I would like to be as a teacher		Diff. Real-Ideal
		x	s	x	s	x
1 The students receive high marks		2.63	.94	2.21	1.09	.42
2 Discusses controversial subjects with the students		1.93	.96	1.72	1.98	.21
3 Creates a playground where everything can be learned		2.46	1.07	2.09	1.12	.37
4 Unable to teach a lesson he or she has not prepared	R	2.81	1.29	2.65	1.52	.16
5 Makes students like the subject through interesting activities		1.97	.99	1.54	1.89	.43
6 Takes students to visit places		2.22	1.14	1.82	1.04	.40
7 Creates analogies to explain the subject matter		1.91	1.00	1.69	1.02	.22
8 Teaches boring lessons	R	2.12	1.14	1.71	1.16	.41
9 The subject matter helps students to solve problems		1.98	.96	1.81	1.02	.17
10 Promotes team work		2.00	1.03	1.78	1.01	.22
11 Very observant of the surrounding world		2.10	.96	1.79	1.00	.31
12 Limits himself or herself to reality	R	2.54	1.22	2.33	1.30	.21
13 Never gives practical examples	R	1.71	1.12	1.68	1.19	.3
14 Distant from students	R	1.84	1.09	1.69	1.13	.15
15 Creates a friendly relationship with the students		2.06	1.07	1.82	1.04	.24
16 Identifies the students with friendly nicknames		3.53	1.28	3.41	1.35	.12
Task		2.13	.55	1.92	.60	.21
Relationship		2.35	.59	2.05	.59	.30

(*) This indicates the items that were scored as reverse (R)

Each item mean, and the subscales' means are in accordance with the construction of the idea of creative and of effective teaching, since every item's score, but item 16 ("Identifies the students with friendly nicknames"), is below 3.00. Nevertheless, the scores that characterise the ideal image are not as close to the absolute creative and effective score (1.00) as the one obtained in the description of the typical creative teacher, described earlier in this text. Even though the samples are different, one must wonder whether people consider the ideal teacher as the typical creative one, when that ideal is confronted with their individual personality and interests. Even though people may like a romantic image of an ideal teacher, when it comes to imagining oneself very far from possible reality, the phenomenon of cognitive dissonance probably prevents wide separations.

In fact, the ideal image score is closer to the absolute creative and effective pole than the real one is, but the average difference between the scores of the elements is small, this meaning that the way subjects think they are (or would be), is not far from the teacher they would like to be (ideal).

The widest differences between item means of reality and ideal occurred in items 5, 6 and 8, probably because the initiatives they describe are more dependent on outside constraints, like the lack of time, too many students, poor facilities, poor materials, etc., than on the teacher's abilities, and so the dissonance can be attributed to external factors.

Next, a correlational analysis was made, comparing the corresponding items from each element. As expressed in Table 54 the correlation between elements is positive and substantial, thus showing the similarity between both conceptions: items 1, 5, and 8 (dependent on outside constraints) have the lowest correlation, which makes them especially suitable for to separating real and ideal images; by contrast, items 14, 15 and 16 (dependent on internal constraints) have the highest, thus revealing aspects where the subjects think there is no need for improvement. The correlation within each element is also substantial: items 5 and 15 seem to be crucial in defining important aspects of teaching reality, whereas items 2 and 5 apply more to ideal images; items 1 and 16 seem to be poor indicators of relevant aspects of teaching, due to the low correlation between them and the total score, but if that score is separated in task and relationship aspects, then both items show a fair correlation with the latter.

Table 54. Pearson's coefficients of linear correlation within and between the items and total score of the "As I think I am (would be) as a teacher" element, and the corresponding ones of the "As I would like to be as a teacher" element (n=1097).

		Within "As I think I am (would be) as a teacher"																
	Between items	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total score
Within "As I would like to be"	1	.43	.06	.05	-.04	-.03	.10	.02	.01	.04	.00	-.01	.00	-.08	-.05	.03	.11	.15
	2	.32	.62	.26	.06	.27	.26	.25	.21	.22	.26	.15	.15	.23	.27	.29	.05	.52
	3	.21	.37	.66	.13	.34	.39	.17	.23	.19	.33	.19	.15	.13	.19	.23	.17	.55
	4	.08	.16	.15	.58	.16	.11	.05	.09	-.05	.10	.09	.14	.10	.13	.12	.07	.33
	5	.20	.41	.33	.19	.50	.33	.27	.35	.18	.38	.23	.13	.20	.38	.41	.02	.62
	6	.22	.37	.35	.09	.40	.58	.02	.25	.10	.32	.14	.07	.04	.20	.24	.14	.50
	7	.26	.27	.23	.12	.35	.20	.68	.21	.26	.18	.27	.11	.23	.22	.33	.-05	.47
	8	19	.25	.20	.13	.27	24	.22	.55	.17	.21	.20	.17	.27	.36	.30	-.04	.55
	9	.15	.26	.20	.05	.27	.24	.25	.19	.65	.15	.17	.08	.19	.19	.19	-.01	.40
	10	.14	.28	.29	.19	.41	35	.25	.26	.16	.68	.20	.06	.18	.26	.31	.06	.54
	11	.16	.32	.25	.15	.34	.32	.31	.29	.28	.34	.64	..20	.17	.19	.23	.03	.46
	12	.09	19	.20	.17	.17	.13	.11	20	.09	.12	.25	.64	..24	.22	.12	.09	.41
	13	.09	.17	.13	.18	.25	.16	.16	.32	.14	.22	.15	.25	.65	.32	.19	-.11	.46
	14	.13	.27	.22	.22	.34	.26	.19	.35	.22	.26	.28	.29	.39	.70	.35	-.02	.57
	15	.26	.31	.23	.11	.33	.30	.30	.23	.27	.28	.26	.17	.17	.25	.73	.12	.61
	16	.11	.05	.12	.01	-.03	.07	-.05	-.06	.01	-.01	-.05	-.06	-.16	-.06	.11	.74	.24
	Total score	.44	.61	.55	.40	.64	.57	.51	.55	.46	.55	.57	.44	.46	.58	.56	.15	.80

(*) Every correlation equal to or above .08 is statistically significant to p<.01

Following the correlational analysis, an exploratory factor analysis was done to see if the distribution of the items among the two subscales was still coincident with the one made in the pilot study, now that the subjects of the remaining Schools had been added to the sample. The results are expressed in Table 55.

Table 55. Loadings of each of the 16 items, in each factor considered, taken from ratings in each element, after varimax rotation (n=1097).

	As I think I am (would be) as a teacher		As I would like to be as a teacher	
	FACTORS (% of variance explained)			
Item Nm	Relation (9%)	Task (26%)	Relation (10%)	Task (24%)
1	**.37**	-.19	**.46**	.10
2	**.46**	.32	**.61**	.27
3	**.69**	.10	**.68**	.07
5	**.47**	.43	**.38**	.57
6	**.69**	.04	**.55**	.27
10	**.53**	.26	**.44**	.34
15	**.44**	.43	**.53**	.24
16	**.57**	-.31	**.57**	-.47
4	-.04	**.19**	.14	**.12**
7	-.03	**.62**	.19	**.51**
8	.21	**.48**	.10	**.61**
9	-.01	**.50**	.18	**.42**
11	.19	**.37**	.33	**.42**
12	.23	**.22**	.20	**.30**
13	-.03	**.65**	.01	**.61**
14	.18	**.67**	.18	**.56**

As may be seen, the items group together in the same way they did when considering the first two elements, thus showing some improvement in the instrument's ability to separate task from relationship groupings. Comparing the item distribution and loadings with the ones in the pilot study, the task subscale has became the one with a greater percentage of explained variance, and the adjustment of both elements has improved, especially in the "As I think I am (would be) as a teacher" element. Because of that, and given the fact that the distribution of the items between both factors was not far from the theoretical view, a confirmation of the two-factor model proposed in the preceding chapter was drawn up, using the two previously defined subscales with the respective pool of items, to see how the two-factor model fitted each population (teachers and students). The results of the confirmatory factor analyses, with two correlated factors are shown in Table 56.

As this table shows, measures indicate that the two-factor model provides a stronger fit of the data to the students' sample, in both elements. As to the lecturers' sample, the fit is not equally satisfying, which stresses the fact that both samples see creative teaching in different ways. The Chi-square significance level remains below .05, but its importance may be disregarded for the reasons already discussed when analysing data in Table 44. This time, the sample is even larger than when dealing with the two first elements of the questionnaire.

Table 56. Single sample Fit indexes of a two-factor confirmatory factor analysis, in each of the two elements and samples (lecturers and students)

INDEX	As I think I am (would be) as a teacher		As I would like to be as a teacher	
	Lecturers	Students	Lecturers	Students
Chi-Sq statistic	196	351	196	374
df	103	103	103	103
GFI	.91	.95	.91	.94
AGFI	.88	.93	.88	..92
Steiger-Lind RMSEA	.06	.05	.06	.06
Pop. Gamma Index	.95	.96	.96	.96

GFI=Goodness-of-Fit Index; AGFI=Adjusted Goodness-of-Fit Index; RMSEA=Root Mean Square Error of Aproximation

To evaluate the consistency of the two factor model, a reliability analysis was performed, and the results are shown in Table 57.

Even though the internal consistency of each factor shows weak values - especially in the first element - when both elements are considered together, Alpha values rise to numbers indicating a strong reliability. The act of joining both elements is not an artificial way of improving the reliability index, as the ratings in both elements refer to exactly the same items.

Table 57. Cronbach's Alpha values for each factor, and total, in each element and when both are considered together.

Subscale	As I think I am (would be) as a teacher	As I would like to be as a teacher	Both elements together
Task	.57	.61	.77
Relationship	.68	.69	.82
Total	.72	.76	.86

These values are greater than those collected during the pilot study, thus showing the improvement of the internal consistency of the instrument as the sample increases.

Proposition Two

- Students will imagine themselves as more creative teachers than lecturers will.

Using both elements, various analyses of variance were done, using only the relationship subscale as a criterion variable.

Directly related to the proposition, both means, of teachers and students, in each element, were compared, and the results are shown in Table 58.

Table 58. Difference of mean scores, in the relationship subscale, between students and lecturers, and respective p-level.

Subjects	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
Lecturers	245	2.72	2.29
Students	849	2.24	1.98
p-level		.00	.00

(*) Both groups were considered to have homogenous variances, with non-significant p. values in Levene's test ranging from .22 to .55.

As may be seen, lecturers and students differ in the way they see themselves as teachers, in real as well as in ideal terms, when referring to creative teaching.

Next, a comparative analysis was made within each School, to see if the differences still hold in the various cells.

Within Schools

A multivariate analysis of variance (MANOVA) was run, using "role" and "School" as predictors, and real and ideal relationship subscales as criterion variables, and the results are shown in Table 59.

Table 59. Multivariate measures of difference between and within roles and the mean score of the relationship subscale, in each School, of the "How I think I am/would be", and the "How I think it should be" elements, and its p-level.

Effect	Wilk's lambda	Rao's R	p-level
Role	.95	15.09	.00
School	.91	9.03	.00
Role x School	.96	3.53	.00

		Dependent variables	
School(*)	n	Real	Ideal
1 - ESCS	225	2.21	1.82
2 - ESEL	181	1.99	1.71
3- ISCAL	262	2.59	2.42
4 - ESD	43	2.09	1.83
5 - ESML	68	2.33	2.08
6 - ESTC	76	2.27	1.88
7 - ISEL	237	2.59	2.20
p-level(*)		.00	.00

(*) Scheffe's test:1 diff. 2 and 3; 2 diff. 1, 3, 5 and 7, 3 diff. 1, 2, 4 and 6; 4 diff. 3 and 7; 5 diff. 2; 6 diff. 3 and 7; 7 diff. 2, 4 and 6

As may be seen, the ISCAL shows the highest scores, while the ESEL shows the lowest. The fact that the scores of the ISEL are also comparatively high may be due to its majority of lecturers as subjects, and so it must be looked at with care.

As the Schools were too many to draw a conclusion, it was decided to group the 3 Art Schools (ESD, ESML, and ESTC) in just one, as their number of subjects was few, when compared with the rest, and the differences between them were not significant, even though the ESD shows values closer to creative teaching, at least in the "Real" element (p<.01), than the ESML and the ESTC. Therefore, while referring to the second proposition, they will be mentioned just as "Art Schools". The results of this classification are shown in Table 60.

Table 60. Multivariate measures of difference between and within roles and Schools' relationship subscale mean score of "How I think I am/would be" element, and the "How I think it should be" element, and its p-level.

Effect	Wilk's lambda	Rao's R	p-level
School	.82	27.29	.00

		Dependent variables	
School(*)	n	Real	Ideal
1- ESCS	225	2.21	1.82
2 - ESEL	181	1.99	1.71
3 -ISCAL	262	2.59	2.42
4 - ART	187	2.25	1.94
5 -ISEL	237	2.59	2.20
p-level(*)		.00	.00

(*) Scheffe's test: All differ from each other, at p<.01 level, but 1 and 4, which do not differ, in the "Real" element; Schools 1, 2 and 4, in the "Ideal" element, also do not differ between themselves.

Under this classification, it is possible to see that the ESEL has the lowest scores, the ISEL and ISCAL the highest, and the Art Schools and the ESCS are in the middle. These differences may point to a significant separation of conceptions that the various Schools have, concerning creative teaching. Nevertheless it is necessary to examine the differences between, as well as within, roles, to see if this kind of difference between Schools still holds.

The next tables present differences in perception, by role, in the various Schools.

Table 61. Difference of mean scores, in the relationship subscale, between students and lecturers, and respective p-level, at the ESCS.

Subjects	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
Lecturers	22	2.75	2.24
Students	203	2.15	1.78
p-level		.00	.00

Table 62. Difference of mean scores, in the relationship subscale, between students and lecturers, and respective p-level, at the ESEL.

Subjects	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
Lecturers	25	2.23	1.97
Students	157	1.95	1.67
p-level		.01	.00

Table 63. Difference of mean scores, in the relationship subscale, between students and lecturers, and respective p-level, at the ISCAL.

Subjects	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
Lecturers	44	2.74	2.31
Students	213	2.56	2.44
p-level		.07	.19

Table 64. Difference of mean scores, in the relationship subscale, between students and lecturers, and respective p-level, at the Art Schools.

Subjects	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
Lecturers	32	2.53	2.26
Students	155	2.19	1.88
p-level		.00	.00

Table 65. Difference of mean scores, in the relationship subscale, between students and lecturers, and respective p-level, at the ISEL.

Subjects	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
Lecturers	122	2.86	2.36
Students	115	2.29	2.01
p-level		.00	.00

These tables show a consistent difference between lecturers and students in every School but the ISCAL, where a singular population of students seems to apply. These differences among students will be examined in the next subsection.

Considering the three common predictors - lecturer vs. student, male vs. female, and School - a 2x2x5 factorial analysis of variance design was run, in order to evaluate each predictor against its percentage of explained variance in the criterion variables, taken together, and the results appear in Table 66.

As it may be seen, "Sex" does not interfere with the other variables, and so the differences between Schools, as to the distribution of male and female subjects, especially among students, is not enough to produce significant variation on its own. In contrast, differences between lecturers and students seem to vary according to the School considered, and so deserve a deeper analysis.

Table 66. Multivariate analysis of variance between and within roles, sex and School, against the relationship subscale mean scores of "How I think I am/would be" element, and the "How I think it should be" element, taken together, and its p-level.

Effect	Wilk's lambda	Rao's R	p-level
1 – Role	.97	13.64	.00
2 – Sex	.99	4.22	.02
3 – School	.95	7.71	.00
1 x 2	.99	.11	.90
1 x 3	.96	6.13	.00
2 x 3	.99	1.09	.36
1 x 2 x 3	.99	.38	.89

Within Students

As the factors "Year", "Sex", and "Course" could make a difference in the appreciation of the variables involved, another MANOVA was drawn up, using only the factors "School" and "Year", and their interactions, and the results are shown in Table 67. As to the variable "Course", there was not enough subjects in every possible cell, and so it will not be considered in this analysis.

As it may be seen, the students from the ISCAL show higher scores, and those from the ESEL show the lowest ones, when imagining themselves as teachers, and the ones from the ESCS and the Art Schools seem to stay in the middle. The ISEL has lost its place with the ISCAL, as when both lecturers and students were together, but still holds a second place in its distance from the creativity pole (1.00).

Table 67. Multivariate analyses of variance between and within Year and Schools' relationship subscale mean scores of "How I think I am/would be" element, and the "How I think it should be" element, and its p-level, with students as subjects (n=849).

Effect	Wilk's lambda	Rao's R	p-level
School	.75	31.45	.00
year	.99	.21	.93
School x year	.96	2.23	.00

	Dependent variables	
School	Real	Ideal
ESCS	2.16	1.79
ESEL	1.93	1.68
ISCAL	2.57	2.45
ART SCHOOLS	2.24	1.91
ISEL	2.33	.208
p-level (*)	.00	.00

(*) Scheffe's test: All differ from each other to $p<.01$ in the real element, but the ESCS and the Art Schools, which do not differ. In the Ideal element, the ESEL and the ISCAL differ from each other and from the other Schools at $p<.01$. The ESCS also differs from the ISEL at $p<.02$ level.

Even though the variable "Year" does not seem to produce any difference, its interaction with the "School" does, as shown in the analyses seen in Tables 68 to 72.

Table 68. Difference of mean scores, in the relationship subscale, between school years, and respective p-level, at the ESCS.

Year	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
1	77	2.06	1.69
2	70	2.17	1.79
3	56	2.23	1.89
p-level		.07	.04 (*)

(*) Scheffe's test: First year differs from the third at $p<.04$ level

Table 69. Difference of mean scores, in the relationship subscale, between school years, and respective p-level, at the ESEL.

Year	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
1	89	1.98	1.64
2	33	1.88	1.66
3	30	1.93	1.75
p-level		.58	.59

Table 70. Difference of mean scores, in the relationship subscale, between school years, and respective p-level, at the ISCAL.

Year	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
1	69	2.67	2.60
2	72	2.62	2.45
3	78	2.42	2.31
p-level (*)		.03	.02

(*) Scheffe's test: First year differs from the third at p<.03 level

Table 71. Difference of mean scores, in the relationship subscale, between school years, and respective p-level, at the Art Schools.

Year	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
1	78	2.12	1.78
2	49	2.20	1.94
3	25	2.39	2.02
p-level		.05	.03

(*) Scheffe's test: First year differs from the third at p<.04 level

Table 72. Difference of mean scores, in the relationship subscale, between school years, and respective p-level, at the ISEL.

Year	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
1	12	2.45	2.24
2	66	2.30	1.98
3	37	2.24	2.01
p-level		.40	.25

When separated by year, as seen on Tables 68 to 72, those who enter the ISCAL (and probably those who enter the ISEL, as some of its cells were very small) seem further away from creative teaching than the rest of the students of the IPL. Nevertheless, while these students seem to get closer to creative teaching each year, with the remaining students it seems that the opposite is the case (not at the ESEL).

The "School" effect seems then to influence the image students have of their teaching ability, as far as creativity is concerned.

Next, a final 2x3x5 factorial analysis of variance was run, concerning the interaction effects the variable "Sex" could have with the remaining ones, and the results are shown in Table 73.

Although significant, "Sex" does not influence the remaining variables with which it may be associated. Nevertheless, it becomes clear that females see themselves as teachers closer to creativity in teaching than males do, at least as far as students are concerned.

Table 73. Multivariate analyses of variance between and within Sex, Year and Schools' relationship subscale mean scores of "How I think I am/would be" element, and the "How I think it should be" element, and its p-level, with students as subjects.

Effect	Wilk's lambda	Rao's R	p-level
Sex	.98	5.54	.00
Sex x Year	.99	.92	.45
Sex x School	.99	.21	.97

	Dependent variables	
Sex	Real	Ideal
Male	2.39	2.15
Female	2.19	1.97
p - level	.00	.00

Within Lecturers

In order to evaluate all predictors ("Academical Qualifications", "Sex", "School", and "Experience") affecting lecturers, against the two effect variables taken together, a 4x2x5 MANOVA was run, with "Experience" as a covariate, and the results are shown in Table 74.

Table 74. Multivariate analysis of variance between and within Academic Qualifications, Sex, School, and Experience (as covariate), against the relationship subscale mean scores of "How I think I am/would be" element, and the "How I think it should be" element, taken together, and its p-level, in the lecturers sample (n=245).

Effect	Wilk's lambda	Rao's R	p-level
1 - Acad. Qualif.	.97	.41	.67
2 - Sex	.99	.44	.65
3 - School	.92	2.25	.02
1 x 2	.99	.71	.49
1 x 3	.97	.74	.65
2 x 3	.99	.38	.93
1 x 2 x 3	.99	.22	.97

	Dependent variables	
School	Real	Ideal
ESCS	2.99	2.33
ESEL	2.29	1.99
ISCAL	2.61	2.19
ART SCHOOLS	2.54	2.32
ISEL	2.86	2.38
p-level (*)	.02	.03

(*) Scheffe's test: The ESEL differs from the ISEL at p<.02 level, in both elements, and from the ESCS, in the first element

From this table, it may be seen that all predictors but "School" do not produce effects in the dependent variables. The "Teaching Experience", used as covariate, revealed no statistically significant influence, and the regression made against each effect shows a tendency for a person's own image of teaching to be closer to creative teaching as experience increases (Beta= -.18; signif. of regression coef. <.08), while the change in the ideal (importance) is almost nil (Beta= -.07; signif. of regression coef. <.51). This is probably why the scores at the ESCS and the ISEL, where the average teaching experience is shorter (9 to 12 years), are higher than at the ESEL, which has the longest average teaching experience (19 years). The ESEL has also the cumulative effect of "Sex" and "Academic award", because this School has a higher percentage of female and PhD teachers, than the other Schools have.

Summary of the Results Related to Proposition Two

As the presented results revealed, and according to the second proposition, it is possible to draw up the following conclusions:

* Lecturers and students differ in the way they see themselves as teachers, in real as well as in ideal terms, when seeing themselves in terms of creativity in teaching.

In a very conclusive way, the analyses made confirm the central proposition of this research. Even though students from the ISCAL seem not to support this view, it became clear that they exhibit completely different scores from the rest of the students, and so they do not invalidate the finding.

* Different populations of students seem to have chosen different Schools.

When separated by year, as seen on Tables 68 to 72, those who enter the ISCAL (and probably those who enter the ISEL) seem further away from creative teaching than the rest of the students of the IPL.

It was also possible to see that the ESEL obtained the lowest scores, the ISEL and ISCAL the highest, and the Art Schools and the ESCS came in the middle. These differences may point to a significant separation of conceptions that the existing populations of the different Schools have, concerning perceptions of self as teachers, when referring to creative teaching.

* The "School" variable is the only one, besides "Role", which causes effects alone, or when associated with others. "Sex" differences are only visible when taken in isolation, and only in the students' sample.

The variable "Sex" seems not to interfere with the other variables, and so the differences between Schools, as to the distribution of male and female subjects, is not enough to produce significant variation on its own.

The variable "School" has revealed itself the most consistent one, after the variable "Role", in producing differences among criterion variables.

* The evolution of the students within the Schools seems to standardise the way they see themselves as teachers, in real as in ideal terms, even though not strongly enough to annihilate entry differences between them.

Students from the ISCAL and the ISEL, who show the higher entry values, seem to get closer to creative teaching each year, while with the remainder it seems that the opposite is the case (not at the ESEL).

* As to the lecturers, only the predictor "School", in the case of the ESEL and of the ESCS, seem to produce significant effects upon the criterion variables, as far as detecting different perceptions of self as creative teachers.

The "Teaching Experience", used as covariate, did not reveal statistically significant influence, but its tendency supports what may be one of the reasons why the scores at the ESCS appear higher than at the ISEL. In fact, the average teaching experience is shorter at the former (9 years), while at the ESEL, faculty have the longest average teaching experience (19 years). The ESEL has also the cumulative effect of "Sex" and "Academic Qualifications", as reasons to exhibit more proximity to the image of creative teaching.

This way, it is probably personal variables, not context or culture variables, that explain why lecturers show some differences in their perceptions of self as teachers, with reference to the creative teaching concept

* The predictor "Sex", when not associated with other independent variables, seems to produce significant variation in perceptions of self as creative, but only among students. In fact, female students tend to see themselves closer to creative teaching.

Proposition Three

- Lecturers will perceive themselves more effective as teachers, than students think they would be, if they were teachers.

As with the previous analyses, similar ones were done using both elements, with only the task subscale as a criterion variable.

Directly related to the proposition, both means of teachers and students, in each element, were compared, and the results are shown in Table 75.

Table 75. Difference of mean scores, in the task subscale, between students and lecturers, and respective p-level.

Subjects	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
Lecturers	245	1.99	1.77
Students	849	2.16	1.97
p-level		.00	.00

(*) Both groups were considered to have homogenous variances, with non-significant p. values in Levene's test ranging from .32 to .73.

As may be seen, lecturers and students differ in the way they see themselves as teachers, in real as well as in ideal terms, when assessing themselves as effective teachers, but now the difference is opposite to when referring to creative teaching: i.e. students show perceptions of teaching further from effectiveness than faculty.

Next, a comparative analysis was made within each School, to see if the differences still hold in the various cells.

Within Schools

A multivariate analysis of variance (MANOVA) was made, using "role" and "School" as predictors, and real and ideal relationship subscales as criterion variables, and the results are shown in Table 76.

Table 76. Multivariate measures of difference between and within roles and Schools' task subscale mean score of "How I think I am/would be" element, and the "How I think it should be" element, and its p-level.

Effect	Wilk's Lambda	Rao's R	p-level
Role	.94	6.68	.00
School	.93	6.38	.00
Role x School	.95	4.78	.00

		Dependent variables	
School(*)	n	Real	Ideal
1	225	2.04	1.62
2	181	1.99	1.77
3	262	2.19	2.10
4	43	1.78	1.63
5	68	2.10	2.00
6	76	1.97	1.70
7	237	2.08	1.88
p-level(**)		.00	.00

(*) School label: 1-ESCS; 2-ESEL; 3-ISCAL; 4-ESD; 5-ESML; 6-ESTC; 7-ISEL.

(**) Scheffe's test:1 diff. 3, 5 and 7; 2 diff. 3; 3 diff. all but 5; 4 diff. 3 and 5; 5 diff. 1 and 4; 6 diff. 3; 7 diff. 1 and 3, in the Ideal element. In the Real element, School 1 does not differ; 2 diff. 3; 3 diff. 2 and 4; 4 diff. 3 and 7; 5 and 6 do not differ; 7 diff. 4.

As it may be seen once again, the ISCAL shows higher scores than the remaining Schools, especially the ESEL and the ESD. The fact that the scores of the ESML and the ISEL are also comparatively high raises an interesting question as to its possible reasons. Nevertheless, as lecturers and students are mixed in this Table, figures must be looked at with care.

Even though the Schools are too many to draw a conclusion, it was not possible to aggregate the Art Schools, as their scores show themselves completely different, with the ESD scoring lower than the rest, while the ESML scores higher.

The next tables present role differences, in perception of effective teaching, in the various Schools.

Table 77. Difference of mean scores, in the task subscale, between students and lecturers, and respective p-level, at the ESCS.

Subjects	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
Lecturers	22	2.01	1.49
Students	203	2.06	1.74
p-level		.65	.03

Table 78. Difference of mean scores, in the task subscale, between students and lecturers, and respective p-level, at the ESEL.

Subjects	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
Lecturers	25	2.02	1.85
Students	157	1.95	1.70
p-level		.50	.20

Table 79. Difference of mean scores, in the task subscale, between students and lecturers, and respective p-level, at the ISCAL.

Subjects	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
Lecturers	44	1.87	1.74
Students	219	2.52	2.47
p-level		.00	.00

Table 80. Difference of mean scores, in the task subscale, between students and lecturers, and respective p-level, at the ESD.

Subjects	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
Lecturers	6	1.63	1.50
Students	37	1.93	1.76
p-level		.08	.09

Table 81. Difference of mean scores, in the task subscale, between students and lecturers, and respective p-level, at the ESML.

Subjects	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
Lecturers	17	2.10	2.01
Students	51	2.09	1.99
p-level		.92	.87

Table 82. Difference of mean scores, in the task subscale, between students and lecturers, and respective p-level, at the ESTC.

Subjects	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
Lecturers	9	1.86	1.63
Students	67	2.07	1.77
p-level		.21	.35

Table 83. Difference of mean scores, in the task subscale, between students and lecturers, and respective p-level, at the ISEL.

Subjects	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
Lecturers	122	2.04	1.80
Students	115	2.13	1.96
p-level		.13	.01

These tables show differences between lecturers and students only in half of the Schools, and even then only in the Ideal element (except the ISCAL, which presents differences in both elements). Even though the overall score favours different self perceptions of effectiveness, between teachers and students, the fact that it is really visible only in an "outlier" School, may lead us to accept the null hypothesis.

Considering the three common predictors - lecturer vs. student, male vs. female, and School - a 2x2x5 factorial analysis of variance design was done, in order to evaluate each predictor against its percentage of explained variance in the criterion variables, taken together, and the results appear in Table 84.

Table 84. Multivariate analysis of variance between and within Role, Sex and School, against the task subscale mean scores of "How I think I am/would be" element, and the "How I think it should be" element, taken together, and its p-level.

Effect	Wilk's Lambda	Rao's R	p-level
1 - Role	.97	3.38	.03
2 - Sex	.99	1.21	.29
3 - School	.95	4.68	.00
1 x 2	.99	1.62	.20
1 x 3	.95	4.28	.00
2 x 3	.99	.87	.56
1 x 2 x 3	.98	1.90	.04

As may be seen, "Sex" does not interfere with the other variables, and so the differences between Schools, as to the distribution of male and female subjects, especially among students, is not a reason to produce significant variation on its own. In contrast, differences between lecturers and students seem to vary according to the School considered, but that difference is due mainly to the ISCAL, as already mentioned.

Within Students

As the factors "Year", "Sex", and "Course" could make difference in the appreciation of the variables involved, another MANOVA was drawn up, using only the factors "School" and "Year", and their interactions, and the results are shown in Table 85. As to the variable "Course", there was not enough subjects in every possible cell, and so it will not be subjected to a separate analysis.

Table 85. Multivariate analyses of variance between and within year and Schools' task subscale mean scores of "How I think I am/would be" element, and the "How I think it should be" element, and its p-level, with students as subjects.

Effect	Wilk's Lambda	Rao's R	p-level
School	.74	21.73	.00
year	.99	.13	.97
School x year	.96	1.52	.05

	Dependent variables	
School	Real	Ideal
ESCS	2.06	1.74
ESEL	1.92	1.67
ISCAL	2.52	2.48
ESD	1.99	1.79
ESML	2.12	2.07
ESTC	2.13	1.81
ISEL	2.13	1.99
p-level (*)	.03	.01

(*) Scheffe's test: Only the ISCAL differs from the rest to p<.01 in the real element. In the Ideal element, the ISCAL also differs from the rest, but the ESCS, the ESEL, and the ESD show differences from the other Schools at various p levels.

As may be seen, the main cause of difference appears due to the students from the ISCAL, even though other differences appear, in the Ideal element.

Although the interaction of the Year and School variables show significance, that difference does not show when each School is taken isolated, but at the ISCAL and the ESCS, as seen on Tables 86 and 87. Besides these two, all three years show similar values as to the perception of what students imagine they would be if they were teachers, as far as effectiveness is concerned (Real), as well as the relative importance that they attribute to this factor (Ideal).

Table 86. Difference of mean scores, in the task subscale, between school years, and respective p-level, at the ESCS.

Year	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
1	77	2.03	1.68
2	70	1.99	1.73
3	56	2.18	1.82
p-level		.07	.04 (*)

(*) Scheffe's test: First year differs from the third at p<.04 level

Table 87. Difference of mean scores, in the task subscale, between school years, and respective p-level, at the ISCAL.

Year	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
1	69	2.65	2.62
2	72	2.59	2.55
3	78	2.33	2.26
p-level		.03	.02

When separated by year, those who enter the ISCAL seem further away from effective teaching than the rest of the students of the IPL.

Nevertheless, while these students seem to get closer to effective teaching each year, at the ESCS they seem to lose their ideal of effectiveness throughout the course.

The "School" effect, though, seems to produce influence only in the image students have of their teaching ability, as far as effectiveness is concerned, and of its relative importance, but only in a few cases.

Next, a final 2x3x5 factorial analysis of variance was run, concerning the interaction effects that the variable "Sex" could have with the remaining variables, and the results are shown in Table 88.

Table 88. Multivariate analyses of variance between and within Sex, Year and Schools' task subscale mean scores of "How I think I am/would be" element, and the "How I think it should be" element, and its p-level, with students as subjects.

Effect	Wilk's Lambda	Rao's R	p-level
Sex	.99	.38	.69
Sex x Year	.99	.45	.77
Sex x School	.98	1.18	.30

The variable "Sex" does not influence the remaining ones with which it may be associated.

Within Lecturers

In order to evaluate all predictors (Academic Qualifications, Sex, School, and Experience) affecting lecturers, against the two effect variables taken together, a 4x2x5 MANOVA was run, having "Experience" as a covariate, and the results are shown in Table 89.

Table 89. Multivariate analysis of variance between and within Academical Qualifications, Sex, School, and Experience (as covariate), against the task subscale mean scores of "How I think I am/would be" element, and the "How I think it should be" element, taken together, and its p-level, in the lecturers sample.

Effect	Wilk's Lambda	Rao's R	p-level
1 - Acad. Degree	.99	.38	.25
2 - Sex	.97	3.29	.04
3 - School	.84	3.06	.00
1 x 2	.99	.39	.68
1 x 3	.90	1.83	.05
2 x 3	.92	1.39	.17
1 x 2 x 3	.99	.22	.97

	Dependent variables	
School	Real	Ideal
ESCS	2.06	1.41
ESEL	2.28	1.95
ISCAL	1.79	1.76
ESD	1.63	1.46
ESML	2.01	1.83
ESTC	1.62	1.52
ISEL	2.06	1.78
p-level	.01 (*)	.13

(*) Scheffe's test: Only faculty from the ESEL differs from that of the ISCAL and the ESTC, at p<.01 level.

From the table, it may be seen that all the predictors but "School" produce no effects. The "Teaching Experience", used as covariate, revealed no statistically significant influence, and the regression made against each effect, shows a tendency for one's own image of teaching to be closer to effective teaching as the experience progresses (Beta= -.17), while the change in the ideal is negative (Beta= .13), that is, the longer the experience, the less importance the individual attributes to effectiveness, but not the in the way lecturers perceive their present teaching. This tendency does not help to explain why it is at the ESEL - the School where the average teaching experience is longer - that faculty perceives reality as being more distant from effectiveness, unless there is some sort of compensatory effect. This School also does not have the cumulative effect of "Sex", as in the other Schools, where there is a masculine majority, which makes a difference only in the Ideal element, as seen in Table 90.

None of the remaining variables may help to explain this School's results, as far as effective teaching is concerned, except, perhaps, the sort of balance that creative and effective teaching may have between each other. In fact, it is difficult to find creative teaching and effective teaching scores high or low at the same time, among lecturers; they seem to be mutually exclusive. This way, as the lecturers from the ESEL show the lowest scores in creative teaching, they also show the highest in effectiveness; also, the ones from the ISCAL score high in creativity and low in effectiveness; at the ESCS, the opposite is the case.

Another interesting finding is the possibility that there exists some kind of compensatory effect between students and lecturers, and that both tend to converge their preferences for creativity or effectiveness in teaching.

In the case of the ESEL, where students show the lowest scores in creative teaching, lecturers seem to follow this tendency. As to effective teaching, while students maintain the lowest score, lecturers exhibit the highest, and one must not forget that the first year students, in this School, score even lower in effective teaching. They seem, thus, to follow faculty's orientation and move away from effectiveness through the years. At the ESCS, students score comparatively low in creative teaching, especially in their first year, while lecturers score high, and third year students show an increase in this score. At the ISCAL, the same happens, but in an opposite direction. In fact students have the highest scores, while lecturers have the lowest, at least in effective teaching, and so students change their attitudes through the years, in the direction of faculty. This way, students seem to follow the teachers, in a sort of role making according to faculty's preferences.

Table 90. Difference of mean scores, in the task subscale, between male and female teachers, and respective p-level.

Subjects	Nm(*)	As I think I am (would be) as a teacher	As I would like to be as a teacher
Male	167	1.93	1.58
Female	77	1.92	1.79
p-level		.98	.00

Summary of the Results Related to Proposition Three

In accordance with the results presented, and the third proposition, it is possible to draw the following conclusions:

* Lecturers and students do not differ in the way they see themselves as teachers, in real as well as in ideal terms, when looking at themselves as effective teachers, but not always.

In a way, the analyses made do not confirm the second central proposition of this research, as only in the case of students of the ISCAL is the proposition supported. If the ISCAL was taken out of the sample, there would not be any difference between students and faculty (p level would be less than .55, to the Real element, and .62, to the Ideal).

* Different populations of students seem to have chosen the ISCAL.

Again, when separated by year, those who enter the ISCAL seem further away from effective teaching than the rest of the students of the IPL.

The variable "Sex" seems not to interfere with the other variables, and so the differences between Schools, as to the distribution of male and female subjects, is not enough to produce significant variation on its own.

The variable "School" has revealed itself the most consistent one, after the variable "Role", in producing differences among criterion variables.

* At the ISCAL, students improve their own perception of effectiveness as teachers, over the years, while at the ESCS that image seems to get worse. In the remainder Schools, there is no visible evolution.

* As to the lecturers, neither the School, nor any other kind of variable seem to produce significant effects upon the criterion variables, as far as detecting different perceptions of self as effective teachers.

In fact, none of the predictors but the "School" produced effects. The "Teaching Experience", used as covariate, did not reveal statistically significant influence.

* Orientations towards creativity and effectiveness, among faculty, seem to be of a mutually exclusive nature, that is, when one perceives an orientation to creative teaching, one does that at the expense of effectiveness, and vice versa. This tendency is not visible among students.

* Students seem to follow faculty's orientation, and change over the years in their direction.

* The predictor "Sex", when not seen associated with other independent variables, seems to produce significant variation in perceptions of self as effective, but only among faculty, in the Ideal element. The tendency is opposite to the case of creative teaching, that is, female lecturers show themselves more distant from effectiveness in teaching than men.

Proposition Four

- Lecturers will perceive their actual performance (real) as further from what they think is important (ideal), in terms of creativity and of effectiveness, than students will theirs.

The analyses include a first one concerning differences between real and ideal scores, in each subscale, altogether and within each role; and a second, which will compare the differences between real and ideal scores of students with the differences of faculty, all together and in each School.

The first procedure includes subjecting the mean score of each subscale to a t-test for dependent variables, against the correspondent subscale of the other element. The results are shown in Tables 91 to 93.

Table 91. Difference of mean scores, between real and ideal elements, in each subscale, and respective p-level, in the whole sample.

Subscales	Elements		p-level
	As I think I am (would be) as a teacher	As I would like to be as a teacher	
Task	2.12	1.92	.00
Relationship	2.35	2.05	.00

Table 92. Difference of mean scores, between real and ideal elements, in each subscale, and respective p-level, within lecturers.

Subscales	Elements		p-level
	As I think I am (would be) as a teacher	As I would like to be as a teacher	
Task	1.99	1.77	.00
Relationship	2.72	2.28	.00

Table 93. Difference of mean scores, between real and ideal elements, in each subscale, and respective p-level, within students.

Subscales	Elements: As I think I am (would be) as a teacher	Elements: As I would like to be as a teacher	p-level
Task	2.16	1.97	.00
Relationship	2.24	1.98	.00

As may be seen, both measures of ideal are closer to creative-effective teaching, in the whole sample and within each sub-group considered, and in every case the difference between elements is statistically significant. Nevertheless, it is interesting to notice that while the relative differences (between real and ideal) of effective teaching remain the same in both roles, differences in creative teaching are wider among lecturers. Also, the "ideal" of the students starts where the lecturers' "real" ends, as far as the relationship aspect of teaching (creative) is concerned, and vice-versa, as to the task aspect of teaching (effective).

This distinction between real and ideal appears different in the case of students and of faculty, depending probably on the sub-sample considered, and that is why it is important to assess how it varies within each School. Therefore, using the mean difference scores between elements, a series of t-test measures for independent variables were done, after calculating the mean differences between real and ideal elements, and the results are shown in Tables 94 to 99.

Table 94. Mean scores of differences between elements, of students and lecturers, and respective p-level.

Subjects	Task	Relation
Lecturers	.11	.22
Students	.10	.13
p-level	.35	.00

Table 95. Mean scores of differences between elements, of students and lecturers, and respective p-level, at the ESCS.

Subjects	Task	Relation
Lecturers	.26	.25
Students	.16	.19
p-level	.04	.10

Table 96. Mean scores of differences between elements, of students and lecturers, and respective p-level, at the ESEL.

Subjects	Task	Relation
Lecturers	.09	.13
Students	.12	.14
p-level	.41	.76

Table 97. Mean scores of differences between elements, of students and lecturers, and respective p-level, at the ISCAL.

Subjects	Task	Relation
Lecturers	.06	.22
Students	.03	.06
p-level	.32	.00

Table 98. Mean scores of differences between elements, of students and lecturers, and respective p-level, at Art Schools.

Subjects	Task	Relation
Lecturers	.07	.13
Students	.10	.16
p-level	.36	.53

Table 99. Mean scores of differences between elements, of students and lecturers, and respective p-level, at the ISEL.

Subjects	Task	Relation
Lecturers	.12	.25
Students	.08	.14
p-level	.10	.00

The fact that the results differ according to the School considered, and that in some of them (ESCS, ESEL and Art Schools) there was no observable difference, does not invalidate the defined proposition.

Summary of the Results Related to Proposition Four

As expressed in this last section, the findings may be summed up in the following considerations:

* Ideal images of teaching differ significantly from real ones in being closer to creativity and effectiveness in teaching. This difference occurs irrespective of the role or the School considered.

* The lecturers seem to experience more difficulty than students in combining real and ideal perceptions of creativity in teaching, but not when assessing themselves as to teaching effectiveness.

This separation between students and faculty has probably to do with a deeper consciousness, among lecturers, of the teaching reality, and of how it should be (ideal), while the students do not imagine them being so different (real and ideal), as far as the relationship aspects are concerned.

As to the absence of differences between real and ideal task elements, it is interesting to notice that while effective teaching is related to skills and knowledge aspects of the teacher, people may reject the possibility of being too unsatisfied with their present performance, as to the lecturers, or imagining themselves as not being able to reach an acceptable standard of teaching, in the case of the students. In the case of the relationship aspect, things do not seem to work out that way, and people probably feel that emotional and personality aspects are more difficult to change in the direction they would like to, and so creative teaching seems more out of reach for lecturers than for students, perhaps simply because the kind of role that they both perform - to the students it is clearer what must be done in order to establish a good relationship; to the lecturers, what must be done in order to establish a good relationship with the students may be in confrontation with the kind of role they are expected to perform.

Proposition Five

- Creative teachers will tend to score close to students, as to the way they value creativity in teaching, and close to faculty, as to effectiveness.

Twenty-three of the 26 lecturers interviewed filled in a questionnaire, so that their scorings could be compared with the other faculty and with the students, so that the proposition could be tested. The results are shown in Tables 100 and 101.

Table 100. Difference of mean scores, in both elements and subscales, between students and the selected (creative) lecturers, and respective p-level.

Subjects	Nm(*)	As I think I am (would be) as a teacher		As I would like to be as a teacher	
		Task	Relationship	Task	Relationship
Creative lecturers	23	1.91	2.32	1.67	2.01
Students	868	2.16	2.24	1.97	1.98
p-level (*)		.03	.54	.03	.84

(*) Levene's test showed significance in every element and subscale but the relationship factor of the ideal element, thus indicating some problems in the homogeneity of variance.

Table 101. Difference of mean scores, in both elements and subscales, between the normal faculty and selected (creative) lecturers, and respective p-level.

Subjects	Nm(*)	As I think I am (would be) as a teacher		As I would like to be as a teacher	
		Task	Relationship	Task	Relationship
Other faculty	243	1.99	2.72	1.77	2.29
Creative lecturers	23	1.91	2.32	1.67	2.01
p-level (*)		.43	.00	.38	.01

(*) Levene's test showed significance in the task subscales, thus indicating some problems in the homogeneity of variance, in these aspects.

Even though further evidence is needed, due to lack of variance homogeneity between samples in some cases, differences between scores clearly support the proposition. In fact, the lecturers selected as examples of creative teaching seem to have a position closer to students, as to creativity in teaching, and to that of their colleagues, as to effectiveness. It is interesting to notice that while the difference between lecturers and students, as to the way they see effectiveness in teaching (see Tables 75 to 80), is far from clear, that does not apply when comparing the students with the selected lecturers, where the scores appear further apart.

As expected, both selected lecturers and normal faculty differ in their conceptions of creative teaching, but not as to effectiveness in teaching. Nevertheless care must be taken when interpreting these differences, because when faculty is examined within each School, then the lecturers from the Teacher Training School are the ones who score lower in the relationship factor, in both elements.

It must be recalled that some of the selected lecturers are also part of normal faculty, because some of them returned the questionnaire as part of each School's faculty. If these lecturers' questionnaires were taken out of the sample, the differences found would probably tend to become clearer.

This last finding comes in support of the criterion validity of the instrument (accuracy of the test scores in predicting actual performance), as it proved itself able to identify subjects who are recognised as having a different attitude and behaviour. It also supports the conclusion that a creative teacher does not have to make an option to identify his or her role with the students' expectations only, as he or she may approximate to each actor, teacher or student, because each one aims at different types of goals; the former is probably more directed to effectiveness in teaching, while the latter prefers creativity. A creative teacher is then just someone whose role has a better clarification.

Final Comments on the Results of the Questionnaire

Grouping together the findings related to each proposition, we may reach the following considerations:

* Lecturers and students show differences as to their conceptions of the relative importance of the relationship aspects in a typical creative teacher, with the students stressing it more than teachers. Therefore, the first proposition was not accepted.

Students seem to favour the relationship aspects more than faculty, when characterising the typical creative teacher, but the evidence is very weak (differences appear in the whole sample, but not in each School), to support this view. Students do not appear to be different from faculty in their conceptualisation of the relative importance of the task aspects (effectiveness) in creative teaching. Both actors show similar perceptions of what a typical uncreative teacher is like.

Also, the variables "Year", "Course", "School", and their respective interactions, seem to produce some variation among the criterion variables related to creative teaching. In fact, different populations of students seem to have chosen the two Schools (ESCS and ESEL), as entry students differ in their conceptions of creative teaching. This difference is more related to task aspects, which are closer to effectiveness in teaching, rather than to creativity. Different populations seem to have chosen the two courses at the ESCS, and so entry students showed differences more related to relationship aspects, closer to creativity in teaching, rather than to the ones related to effectiveness. The evolution of the students within the Schools seem to "standardise" their conceptions of creative teaching, so that, in their third year, every course reveals similar scores. Lecturers' conception of creative teaching is closer to that of third year students, rather than to those of the first year.

As to the lecturers, neither the School, nor any other kind of variable seems to produce significant effects upon the criterion variables, as far as detecting different conceptions of the typical creative teacher.

The predictor "Sex" does not seem to produce significant variation in any of the populations studied, as to their perception of different ways of seeing creative teaching.

None of the predictors considered was strong enough to detect differences between conceptions of non-creative teaching.

- As to the second proposition, lecturers and students differ in the way they see themselves as teachers, in real as well as in ideal terms, when considering creativity in teaching.

In a very conclusive way, the analyses made confirm the central proposition of this research. Even though students from the ISCAL seem not to support this view, it became clear that they exhibit completely different scores from the rest of the students, and so they do not invalidate the finding.

It was also possible to see that the ESEL obtained the lower scores, the ISEL and ISCAL the highest, and the Art Schools and the ESCS appear in the middle. These differences may point to a significant separation of conceptions, between the existing populations of the different Schools, concerning perceptions of self as a teacher, in the context of creative teaching.

The "School" variable is the only one, besides "Role", which causes effects alone, or when associated with others. "Sex" differences are only visible when taken in isolation, and only in the students' sample, as women tend to see themselves as closer to creative teaching.

The evolution of the students within the Schools seems to "standardise" the way they see themselves as teachers, both in real and ideal terms, even though not strongly enough to annihilate entry differences between them.

As to the lecturers, only the predictor "School", in the case of the ESEL and of the ESCS, seems to produce significant effects upon the criterion variables in detecting different perceptions of self as creative teachers. Nevertheless, it is probably because of personal variables, not context or culture variables, that lecturers show some differences in their perceptions of self as teachers, with reference to the creative teaching concept.

* As to the third proposition, lecturers and students do not differ in the way they see themselves as teachers, in real as well as in ideal terms, when thinking of effective teaching.

In a way, the analyses made reject the second central proposition of this research, as only in the case of students of the ISCAL was the proposition supported. If the ISCAL was taken out of the sample, there would not be any difference between students and faculty (p level would be less than .55, for the Real element, and .62, for the Ideal).

At the ISCAL, students improve their perception of their own effectiveness as teachers, throughout the years, while at the ESCS that image seems to get worse. In the remainder Schools, there is no visible evolution.

As to the lecturers, neither the School, nor any other kind of variable seems to produce significant effects upon the criterion variables, as far as detecting different perceptions of self as effective teachers. Also, orientations towards creativity and effectiveness, among faculty, seem to be of a mutually exclusive nature, that is, when they perceive an orientation to creative teaching, they do that at the expense of effectiveness, and vice versa. This tendency is not visible among students.

Students seem to follow faculty's orientation, and change over the years in their direction.

The predictor "Sex", when not seen associated with other independent variables, seem to produce significant variation in perceptions of self as effective, but only among faculty, in the Ideal element. The tendency is opposite to the case of creative teaching, that is, women appear as less concerned about effectiveness in teaching than men.

* As to proposition number four, ideal images of teaching differ significantly from real images in being closer to the absolute creative and effective teaching poles. This difference occurs no matter what the role or the School considered.

The lecturers seem to experience more difficulty than students in combining real and ideal perceptions of creative teaching, but not in terms of teaching effectiveness.

* As to the fifth proposition, and despite the need for better evidence, due to lack of variance homogeneity between samples in some cases, differences between scores clearly support it. In fact, the lecturers selected as examples of creative teaching seem to have a position closer to students, as to creativity in teaching, and to that of their colleagues, as to effectiveness.

This last finding comes in support of the criterion validity of the instrument (accuracy of the test scores in predicting actual performance), as it proved itself able to identify subjects who are recognised as having a different attitude and behaviour. It also supports the conclusion that a creative teacher does not have to make an option to identify his or her role with the students' expectations only, as he or she may approximate to each actor, teacher or student, because each one aims at different types of goals; the former is probably more directed to effectiveness in teaching, while the latter prefers creativity. A creative teacher is then just someone whose role has a better clarification.

CHAPTER TWO

INTERVIEWS AND OBSERVATIONS

This chapter describes the responses of the lecturers interviewed, as to the way they see their own performance and that of a creative and non creative teacher, as well as how they perceive their ideal behaviour. The second section will describe how the discourse was transformed into a perceptual map, clarifying the relationship between categories. A third section will include the results of the observations made of their classes, in an attempt to find patterns and congruence between their discourse and performance, as well as to detect particularities of their behaviour that may help to justify their selection as examples of creative teaching, and match them to the creative teaching behaviours described during the literature review.

A final summary will integrate the findings from the three sections.

Data From the Interviews

As stated in the Procedure, 26 interviews, out of a possible 62, took place with the lecturers chosen as examples of creative teaching by the

Students' Association or Pedagogic Committees of each School. Besides trying to find out why they thought they had been chosen, questions were put to understand their personal perception of each of the four elements ("What is a creative teacher?"; "What is a non-creative one?"; "How do you see yourself as a teacher?"; "How would you like to be?"). Of these 26 lecturers, 18 were subjected to class observation, as described in Table 102.

Table 102. Biographical data (School, teaching area, years of teaching experience, sex, and academic award) pertaining to each one of the subjects interviewed and observed, and total number of subjects selected in each School.

Subject No.	School	Subjects selected	Observed	Teaching area	Exp.	Sex	Award
1	ESCS	4	yes	Sociology	7	F	Master´s
2			yes	Publicity	9	M	Lic.
3			yes	Marketing	25	M	Lic.
4			yes	Sociology	5	F	Lic.
5	ESEL	13	no	Curr. Develop.	19	F	Master's
6			yes	Health Ed.	15	F	Master's
7			no	Biology Ed.	30	M	Lic.
8			no	Physical Ed.	30	M	PhD
9			yes	Sociology	9	F	Lic.
10			yes	Mathematics	27	F	PhD
11	ISCAL	5	yes	Accountancy	18	M	Lic.
12	ESD	4	yes	Dance	9	M	Bach.
13			yes	Dance	18	M	Master's
14	ESML	6	yes	Composition	12	M	Lic.
15			yes	Opera	12	M	Master's
16			yes	Recorder	13	M	Lic.
17	ESTC	10	yes	Drama	28	M	Bach.
18			yes	Film editing	9	M	Bach.
19			yes	Drama	7	M	Lic.
20			yes	Film sound	16	M	Lic.
21			yes	Music Ed.	15	M	Bach.
22	ISEL	20	no	Civil eng.	19	F	Lic.
23			no	Catalysis	4	M	PhD
24			no	Civil Eng.	17	F	Lic.
25			no	Electronics	19	M	Lic.
26			no	Mechanics	20	M	Master's
Total	7	62	18		16 (*)	18 M 8 F	

(*) Average

As may be seen in the Table, the great majority of the subjects are men, and the teaching experience tends to be a long one, while the degrees vary.

Self Perceptions of Teaching

The first lecturer to be interviewed was a woman, age 32, married, no children, with a BA in Public Relations, with a "licenciatura" in Sociology, doing an MA in Media Studies, responsible for the subject of Social Communication Theory, and with 5 years of teaching experience. She puts her emphasis on the use of things "that provoke, make people think" (e.g. once she decided to project an enormous eye during the whole lesson, without referring to it); on "modernity", and on the use of metaphors. She remembers teachers who influenced her, but none of them she considers creative.

The second was a 54 year-old economist, responsible for the subject of Marketing. Very proud of his first grandson, and with a long teaching experience, he had been the teacher of many of the present lecturers, in other institutions. A reputed professional in the field of marketing and publicity, in an insurance company, he did not consider himself creative (he said he was good at criticising a first idea someone had, not in making the first move, and in building the rest from it), but a true "salesman", more than a lecturer, acting in class just as he did in his job. Having been influenced by a primary school teacher who forbade him to erase a drawing before having corrected it ("never erase before correcting, because you may be repeating the same mistake"), he transferred the responsibility of creation to the students: "I just force them to think; it's they who have to create".

The third one was again a woman, age 30, divorced, no children, with very little experience of teaching at this level. With a "licentiatura" in

Sociology, responsible for the subject of Organisational Sociology, and a health care professional, she saw herself as adaptive to circumstances - a "negotiator" with the students - far from the traditional role of the teacher.

The fourth was an experienced professional in the advertising business, a 48 year-old bachelor, no children, responsible for teaching Publicity Theory, and Creativity in Publicity, he did not see himself as original, but as an "expert in making analogies with the real", as in advertising, and as an actor on stage when teaching, sometimes "amazing" the class.

The fifth was an experienced teacher trainer, M.A. in educational sciences, mother of three children, responsible for teaching curriculum development, said she refused to lecture in her classes, and that she tried to create an environment where students felt free to share experiences. Available outside class, she worries about students with economic and social problems, or that live far away from the School; and those who do not seem to be interested in class, or that arrive late.

A part-time teacher of accountancy and management, with eighteen years' experience, formerly responsible for a finance department in a company, and now a full-time teacher, finishing his M.A., presented an interesting example of how different are the ways in which teachers may be perceived as creative. This lecturer considers himself an intuitive and original actor, more than a teacher, who goes "on stage" in class and "students are pleased if they like the show". He likes to do experiments, in terms of human relationship, and to use what he calls "the heavy approach", where he looks tough, but with a soft heart ("a dog who barks does not bite", says he); he treats the students in a rough way, but sometimes he talks of other things, but never outside class; he does not like to fraternise, as he thinks there are limits to class humanisation. As the subjects he explains are, by their nature, boring, something must be done so that the audience does not fall asleep, and so he uses rhythm changes as the main tool.

A 36 year-old music teacher, with 12 years of teaching experience, also a graduate in history, presented another interesting example of originality in creative teaching. He said his ability to maintain relationships appeared late (14-15 years of age), when a schoolmaster forced him to read poetry aloud in a way that was a success. He sees himself as having a talent difficult to explain, which mixed with his background in history and a natural tendency to humour, produces what he thinks is an interesting discourse, positive and secure. In fact he believes more in "astonishing" the class by lecturing, rather than to have them participating in something that they do not know enough to make the discussion interesting.

A young (26 year-old) ballet teacher said he thought he had been chosen as an example of creative teaching because of the creative nature of the subject that he teaches, and by the fact that he meets his students every day. He sees himself more as a friend who learns much from his students, saying that it is his responsibility to reach the students, not the opposite, and because of that he is forced to change as the students change.

A doctor (paediatrician), M.A. in Health Care, with 15 years of teaching, is responsible for the teaching of school health care to future school teachers. She sees herself as having clear objectives that she adapts to her students, who are of a very heterogeneous nature, pacing her rhythm to their possibilities, learning to use their language (and to unlearn doctor's language), and using her imagination to create with them every approach she makes. To her, participation is a must, and she considers that it is as important to evaluate each one of her students, as to have them evaluate her as a teacher.

Another ballet teacher, but with a longer experience and age (40 years old, 18 years of teaching experience), M.A. in Dance, also noticed that in the list containing examples of creative teaching, at the Dance School, none of the faculty who taught the so-called theoretical subject matters had been designated; he considers that the fact of his subject being a practical one had increased the nomination possibilities. Aiming at seeing each class as an adventure, he said he could not prepare a session without feeling he was going to create something, to have some risk, to surprise himself, as, although starting from a basic structure, he runs each class by "getting the feel of" the students, and the kind of feed back they give him. Very sure of himself, in the way that he has had feedback that he is improving, and is different, he approaches every session in a kind of intuitive frame, in which each step is defined by the result of the previous one or, at least, by the perceived result. Fond of being a teacher, of being with a group, he said he needed to be confronted with the unknown, being communicational and distant at the same time, in a way that changes at the pace he gets to know each student.

A 59 year-old teacher of biology, recovering from a stroke, teaching students for more than 30 years, was designated as another example of creative teaching at the Teacher Training School. This lecturer was a vivid example of the "social" character, getting along well with everybody, succeeding in communicating easily with them, or with anybody, from colleagues to other staff. "I have always been like this; it is a gift", he said. Referring almost always to his time as a school teacher, he recalls how he produced analogies between science and real life, speaking with enthusiasm of the projects he developed with the pupils; how he never criticised them, nor answered simple questions (he would choose another pupil to answer these); how he adjusted teaching to real learning, calling attention to the fact that pupils understand just a little bit of the subject matter, and that it is better to reinforce what they can learn, than to go over that edge, in the hope that at least a few will learn.

Responsible for the subject of film editing, at the Theatre and Cinema School, a 40 year-old lecturer, with nine years of teaching experience considers that the fact he had been chosen by the students had more to do with the kind of relationship that he maintained with them, as he considers the students more as his successors, rather than his students. He said he considers his profession challenging (it is not just a technique, but also an art), and that he just brings into the School an activity that he enjoys very much.

Another lecturer from the same School, responsible for a highly regarded theatre group, 32 years old and with nine years of teaching experience, affirmed that he was mainly interested in awaking the creative sense in his students, and that he looked at them mainly as autonomous artists, rather than the teacher's interpreters. Considering that he had been chosen because he was young and his plays were "in", he said he achieved that awaking of a creative sense by building up a given text together with the students, adapting it to the reality of the group, and leading them to creation, by justifying actions, making options and progressively taking possession of the work, in a way that the teacher did not do much for himself. He saw both roles - teacher and art director - as the same thing, and both as creative activities, in a sort of a Renaissance art workshop, where masters and apprentices work together, and where ethical concerns (relationship with the others) overcome aesthetic ones.

A 52 year-old PhD in educational sciences, a former physical education teacher, with a long teaching experience of 30 years, said he gives the students freedom and autonomy in every activity he does with them, and that his style is supported by a close relational approach, in which he tries not to give all the information they need, by the fact that he never repeats a class the same way, and by establishing analogies between physical education and the teaching of other subjects.

Another one of the few women in this sample, teaching sociology of education to students for the last nine years, divorced, with training in psychoanalysis, shows many doubts about her abilities. "Sometimes yes, sometimes no," she says, referring to the fact that she does not feel she has succeeded every time, and that that has to do with her state of spirit, which gets better every time she is fully convinced of the importance to the students of the things that she talks about. Claiming that she likes to be surprised, she said she needed to please and to see others at ease; that students (not all) were fond of her mainly because she liked them, and that prevented them from giving her the necessary feedback, as happens when the teacher is very nice (students tend to become pleased with the teacher, and forget the rest).

Teaching acoustics for 16 years, an electronic engineer was chosen as an example of creative teaching by cinema students. This lecturer defines himself as enthusiastic, popular, and someone who likes to demystify science and to handle non-specialists, as it forces him to speak only of what really matters. In that School, he finds a completely different environment from his university, where the student was supposed to gain self confidence and problem solving ability by overcoming an extremely demanding curriculum and teachers, who did not take much trouble to see if the students could get along well. Showing a great availability to students outside class, he was proud of knowing every student's name.

A PhD lecturer in mathematics, in the Teacher Training School, with 27 years of experience said she tried to demystify mathematics by putting students to work with materials, because the main problem was that primary school teachers do not like mathematics, and so they pass on that rejection to their pupils. To her, liking it comes first, then trust, and then knowledge, and so she tries to do things with them that they consider important, and even though very demanding with aspects like punctuality or the evaluation programme, she makes herself available to her students, inside or outside class (they have her phone number).

A music teacher, with 15 years of experience, an actor and art director, said the fact that he taught music to drama students contributed a great deal to his nomination as an example of creative teaching, as music in theatre is very flexible, and doing music with non-specialists ends up by including everybody. Describing himself, he stated that he did not exclude any student (he sees himself as very close to the students), promoted discovery and experiments with the unknown, and alerting students to what surrounds them, because the first capability that the musician must have is to be alert to the environment.

An English pianist, 47 years old, an M.A. in Music, and teaching at the Music School for over 12 years, thinks he has been chosen as an example of creative teaching because of being connected to horizons that go beyond the normal class (he teaches stage performance to students of singing). Saying that he believes in the inherent creativity of students, and that what he brings into class is as important as what the students bring, he acts as a "facilitator" to them, by beginning with one or two ideas and building up from there. A master of piano improvisation, he thinks he can do that easily because of his self-confidence, acquired in his childhood. Worrying about making the students' task more simple, he aims at changing attitudes rather than achieving results, because "attitudes can block later achievement", he says.

Even so, he keeps his relationship with the students restricted to the classroom environment, because his family takes up much of his time.

An M.A. in project management, a 44 year-old mechanical engineering lecturer, with 23 years' experience of teaching, sees himself as having a different relationship with his students from the usual one, as he participates in their struggles, supports their demands and gets involved in their problems. He is "like one of them", in his words, and he will quit teaching the day he feels he is just a teacher (someone who comes to class, clears up doubts, but does not try to be close to the students). He aims at bridging academic and work reality, promoting various initiatives, and "dragging" the students with him, as he is not afraid of mixing with them because he is sure of himself. He is proud to say that the students do not skip his classes, and that they apologise when they arrive late; also that he is there to serve, not to be served, and he knows he is acknowledged as such.

A 38 year-old highly skilled recorder player, teaching music for over 13 years, thinks he has been selected because his is a still rare instrument in Portugal, and as he possesses a natural skill to play it well, it is easy for him to teach other people to do it ("a poor player cannot ever be a good teacher"). He justifies his development of an original style by never having had good teachers, and that his graduation in Amsterdam, although decisive in his career, came when he had already a personal style.

One of the few women in a traditional masculine environment - engineering - now in a management position, after 19 years' teaching civil engineering, said she missed her contact with the students, as she considered she had a "fantastic" relationship with them (she used to cry, sometimes, with their demonstrations of affection). The students knew that they could count on her to support their struggles, initiatives and so on. Proud of never repeating an exercise in class, and of the fact that her classes were always different, she used to dedicate great care and attention to the students' problems.

Another engineer (chemistry), a PhD, with only four years' experience of teaching, said he thought he had been selected because he had a good and sincere relationship with the students, and that "they did not have reasons to complain"; also that he is always available to them and that he likes to keep on changing from subject to subject, as he sees in that change an opportunity to learn new things (to him, someone who always teaches the same subject tends to stop improving).

Still at the Engineering Institute, this time in the Civil Engineering Department, a teacher of 17 years' experience, a mother of two children, stressed the friendly (although respectful and distanced) relationship she had with the students; how she was available to them when needed; and that perhaps because of that, she was elected to the pedagogic committee, and selected as an example of creative teaching. She said she tried hard for the students to understand the subject matter, not to be successful in examinations, but to have the necessary tools for their professional lives. In her words, she forced them to think, by giving practical examples and other strategies, so that they can come up with solutions later in the future; she gives them a collection of tests, at the beginning of the year, but not the solutions, as she thinks there is more than one solution to problems, and when they make mistakes, she corrects what they have done wrong. She put a great emphasis on her conviction that the students were honest; that when they knew they had not worked enough, they admitted it, and did not blame the teacher. She knows practically every student's name, and she even calls them a wrong name, just as a joke, and to establish a dialogue with them.

The last lecturer to be interviewed, also at the ISEL, Electronics Department, a teacher with 19 years' experience, said he though he had been designated because of his concern to maintain a dialogue with the students, trying to know more about them than just their knowledge of the subject matter. According to him, his classes were not programmed in too much detail (he hated transparencies, and preferred the whiteboard), thus allowing for some freedom and discovery, and that he tried not to take the subject matter too seriously, and to talk about other matters, like the School and the students' behaviour; sometimes he would even give wrong solutions to the exercises, just to test the students. He considered himself always available to the students, because he feels they are too distanced from the teachers and from the subject matter. He also mentioned that his exercises were always different, and that he did not even look at the last semester's syllabus, when preparing a new semester. He had learned from one of his teachers that the only thing that really matters is to know the subject matter, and then classes could be run no matter how, even though he felt that when he was tired, the students did not benefit from the class.

Till the end of the interviews, many did not mention aspects connected with the relationship factor, so it was necessary to question them about this specific point. All stressed their satisfaction with the relationship as the main positive aspect of their teaching; saying students knew they could count on them for anything, any time; getting to their level without giving up their differences ("they know that no matter how we play, each one stands in a definite position; we are not 'comrades"). Many said they addressed their students as tu (c.f. French "tu"/"vous"), and all spoke of their relationship with the students as full of affection, truth and care, although admitting that some highly affective people might have problems in establishing a close relationship, just as a close relationship could be established with no affection ("fake" relationship). All mentioned ways that students return the affection later (e.g. writing, calling, sending invitations).

Ideal Perceptions of Self as a Teacher

All interviewees exhibited high self-confidence (one said he thought he was "the best there is", and only one said she was not very convinced of herself), and being in an "equilibrium" with the students, in a way that they would be required to change only as the students changed; also that effectiveness was not a major concern. They seemed to be "working in their limits, even though one can always do better". When asked about how they would like to be, many talked about outside constraints, such as the opportunity of having more time for themselves (self development), or for the students (especially outside class, to discuss other things but the subject matter), or smaller classes, so they could undertake a more tutorial mode of teaching (one mentioned that this is the process through which the lecturer may express his whole creativity; another stressed the fact that, at present, students are less determined to strive for themselves, and need some support); they also wish they could develop a language closer to the students and, especially, to know their needs better; know what they think is important; be able to diagnose a student's needs and potentialities faster than is the case now. On the other hand, some of the interviewees show doubts about the advantages of being so understanding of the students' problems, or in helping them too much (it may sometimes be better for the student to fail and have to quit the course).

Almost all of them talked about objectives they would like to implement in the near future, connected with self development (opportunities to make reflections about their experience, or to acquire academic qualifications, or to keep up to date with the latest technologies), curriculum development, equipment acquisition, and new subjects to teach and research. Many mentioned that they like to produce more and better materials for the students.

One of them said she would like to have more humour, so she could give classes that were more fun; another that he would like to lecture less and have the students participating more; being more systematic; to work with more demanding students, at a higher level; developing more analogies; attending other lecturers' classes; reporting latest findings in technology; to speak more slowly and more clearly.

The Creative Teaching Concept

When asked to describe the creative teacher they tended to continue the description of themselves, stressing the personalised approach to the subject, flexibility, and preparation. Some definitions were proposed:

"(...) to use the imagination to help students to understand and internalise the subject matter".

"(...) to be half way to being a good teacher; to allow for motivation".

"(...) is an ideas salesman; is to get students interested in any way; a communicator first".

"(...) the one who does not limit himself or herself to transmitting what others say".

"(...) a seducer"

"(...) someone who leaves his or her mark"

"(...) someone who manages to pass on something difficult in an original way. The one who 'dessacralises' the subject matter"

"(...) the one who 'inflames', 'infects', turns the students into subject matter 'addicts"

"(...) someone with whom you learn"

"(...) is to refuse "off the peg" models"

"(...) something that comes from a humility of creating our practice out of our own evaluation, with a reference that does not have to be perfect (may not be a role model), that must not try to impose itself"

"(...) is to live between light and darkness; to have an idea and not to have the image of that idea"

"(...) a teacher who takes a subject and, with the students' help and very few resources, brings a project into being"

"(...) to try to understand whether what each student takes away out from school as to do with his or her wishes"

"(...) to make each student's path seem to have been defined by their own will"

"(...) being ethical (relationship), before being aesthetic (task)"

"(...) it has to do with the management of the things that one has to learn and to teach"

"(...) is to be able to capture the cultural evolution of the students, to feel the communities' objectives in education, to invent the future and see what kind of knowledge will be necessary then"

"(...) is to create something new with the students"

"(...) someone who is conscious of one's inner strength, which comes from one's own inner child"

"(...) someone highly motivated to be there, who makes the students like to stay in class"

"(...) to find different ways to teach the same thing"

"(...) to be able to discover what the student has to say; what he or she is able to do; how his or her expressiveness reveals itself"

"(...) is not to repeat the same every time"

"(...) is to 'mobilise' the students (some of them think they have done enough by entering higher education)

"(...) someone who thinks the subject matter all over again, after each semester

The descriptions tend to follow already listed characteristics and behaviours, like "diversifies", "likes to be a teacher", "competent", "attentive to students, especially the inhibited ones", "believes deeply in what he or she says", "active", "self-confident", "excited", "has strong convictions", "play", "do and let the students do things", "has to have an universal culture", "is highly personal".

Still others described the creative performance in more detail:

> " To be creative is to be able to, once facing the group with which one is going to work, to establish a relationship of trust, a good interpersonal relation, and a listening climate. Using one's imagination, creating techniques and tactics with the students, and not some pre-defined ones. Show some reliability by giving some initial lectures."

> "The act of creation is an act of questioning, in its absolute sense, and the creator is someone who is in that process. The ideal school is the one that supports the value of creation. If the teacher is not an artist, if he does not share his passion with the students, in a flexible and distanced way, then he is not being creative. The danger of the very creative is to enter a seduction process, in that the student is seduced but not enlightened, which may cause misunderstandings. Pure creativity (dealing with God) can be dangerous in teaching, because this is not inspiration, but perspiration."

> "Someone who brings surprise to the class, who is different than expected, and pleases, in such a way that time passes by instantly; who is playful."

> "Is more an attitude than a process. It is not by wanting to be different that one reaches creativity, but by wanting to state something, in a tendency that may be of a destructive nature".

The Non Creative Teaching Concept

All of them gave a similar picture of what they considered a non-creative teacher, or teaching. " It is the absence of effort to be a good professional"; "One who 'drones on"; "lets the knowledge flow without retaining anything"; "to give lectures (the professor-lecturer)"; "to be a bad teacher"; "to refuse the imagination and symbols", "to read in class (to read from transparencies)", "to bring many aide-mémoires", "without passion, reproducer, fake", "forces the students to go to other sources to know things", "to deliver the subject matter without being attentive to the students' reactions", "does not live the moment", "may be replaced by a book", "no one can be creative driving on a motorway", "grey", "students do not learn but by memorising", "arrives with a doctoral outlook, delivers the subject matter and leaves without paying attention to the students", "someone who does not lead the students to question themselves and the subject matter, more than learning facts and concepts", "a teacher who values concepts more than the way to communicate them to students", "students already know what is going to happen".

Some of them provided more thorough descriptions:

> "Someone who believes in formulas/recipes, and tries to pass them to students; who does not believe in human progress. There are many people like that, who do not have the courage to take risks. Society is made for reproducers, not creators".

> "Someone who repeats what he or she has learned in an uncritical way; who does not renovate the repertoire; who maintains a distance from the students that ends up stifling their initiatives".

> "Teachers do not get to the bottom of the subject matter; they do not even study the books, but only notes, and to be able to teach is not to learn a pedagogic approach or technique, but to study always; to be first and foremost a professional."

Besides their contribution as implicit theories of creative teaching, these illustrations of the discourse of teachers considered creative provide an interesting support to the results reported in the previous chapter. In fact, these teachers describe themselves as in equilibrium with the requirements of their students and those of their peers and superiors, which dictate the role they are supposed to perform as professionals; this equilibrium being obtained by keeping a constant link with the students, evolving as they change, and thus changing the requirements of the tasks that they, as teachers, have to perform. Nevertheless, a more systematic approach is needed to confirm the illustration that has just been provided, so that the construct validity of the instrument used may be enhanced.

The next section will provide such data.

Correspondence Analyses

In an attempt to provide a picture of the match between the discourse of the teachers considered creative and their results in the questionnaire, a systematic approach to their discourse was developed, by submitting five of the 26 interviews, taken at random, to the statistical method designated *correspondence analysis*, using SPAD-T (Lebart, Morineau, Becue & Haeusler, 1993) and STATISTICA software packages.

In accordance with Hair, Anderson, Tatham & Black (1995), correspondence analysis is an interdependence technique that facilitates dimensional reduction and conducts perceptual mapping, based on the association between objects and a set of descriptive characteristics or attributes specified by the researcher. According to these authors, the benefits of correspondence analysis lie in its unique abilities for representing rows and columns (e.g., subjects and categories) in a joint space. This method is normally used to match subjects and behaviours, or brands and attributes; in this case none of them applied, as there was no intention to differentiate between subjects, in accordance with their discourse, but just to obtain a perceptual map of their own words and expressions, with the categories used in this research.

The first type of categories, designated as *research categories*, were obtained by submitting the interviews to successive simplifications of the wording used, and then factor analysed by correspondence analysis; the second type of categories came out of content analysis, where expressions were used instead of words only, and then clustered in what was designated as *context categories*. The first type of categories were used as rows, and the second as columns in a final correspondence analysis, in order to draw up the perceptual map of the discourse.

Research Categories

Using SPAD-T program, the interviews were first submitted to word counting, retaining those with frequencies above 3, and then to a series of simplifications, either by deleting meaningless words (words that could only be considered in the context of their sentences), or by replacing them by analogues (e.g. "create", "creation", "creative" were replaced by "creativity"). After a series of simplifications it was possible to arrive at a list of 35 words, which were translated into English, and whose higher frequencies indicated possible categories, as listed in Table 103.

As expressed in the table, the highest frequencies (e.g., student, teacher, creativity, relation, class) coincide with the main categories used in this research. According to this, further clustering was made: "task" was used instead of any word representing what the teacher does without considering the student in a reciprocal exchange; and "relation" instead of words meaning when that exchange took place. After the word replacement was made in the interviews, the resulting frequencies became those shown in Table 104.

Table 103. Lexical forms by frequency order, and proposed analogues or deletions.

Words	Frequencies	Analogues and deletions
student	232	student
I	177	teacher
creativity	98	creativity
relation	87	relation
class	73	class
develop	66	develop
tell	66	task
teacher	58	teacher
know	55	know
communication	40	relation
subject	40	task
do	29	task
participation	27	relation
objective	25	task
normal	24	normal
different	19	creativity
understand	17	know
individual	13	relation
time	12	relation
school	12	class
important	11	important
nice	11	relation
lead	10	relation
project	9	creativity
enjoy	9	relation
professional	8	task
evaluation	8	relation
method	8	task
try	7	(deleted)
error	7	(deleted)
rule	7	rule
motivation	7	relation
new	5	creativity
real	4	(deleted)
future	4	(deleted)

Table 104. Final lexical forms by frequency order.

Words	Frequencies
student	240
teacher	234
relation	233
task	186
creativity	132
class	86
know	74
develop	66

Taking these frequencies and their correspondent interviews, a correspondence analysis was made, resulting in three factors, explaining 97% of the variance, as expressed in Table 105. Factor one - *relation* - grouped the categories "creativity", "relation", and "student"; factor two - *task* - included the categories "development" and "task", as the ones with greater loadings; factor three - *teacher* - grouped "teacher", "class", and "know".

Table 105. Mass and absolute contributions of each of the 8 categories to each factor considered.

Category	Mass	Absolute contributions of factors (% of variance explained)		
		Factor one (48%)	Factor two (28%)	Factor three (21%)
Relation	.186	**44.4**	9.57	8.96
Student	.192	**20.13**	1.66	19.11
Creativity	.106	**18.85**	3.18	5.05
Task	.149	8.95	**34.74**	3.50
Develop	.053	1.54	**19.37**	1.18
Teacher	.187	.11	13.02	**27.57**
Class	.069	.89	8.53	**11.74**
Know	.059	5.10	9.93	**22.89**

The way the categories clustered together in the factors, complemented with its space distribution (Figure 3), tells us something about the nature of the teachers' discourse: in fact, they seem to see creativity as connected with their students, and with the relationship side of teaching, although in an opposite way (opposing quadrant); the task aspect appears related to their mission of developing the students; and factor three indicates the teacher as the one responsible for the environment (class) where knowledge (of teachers and students) may take place.

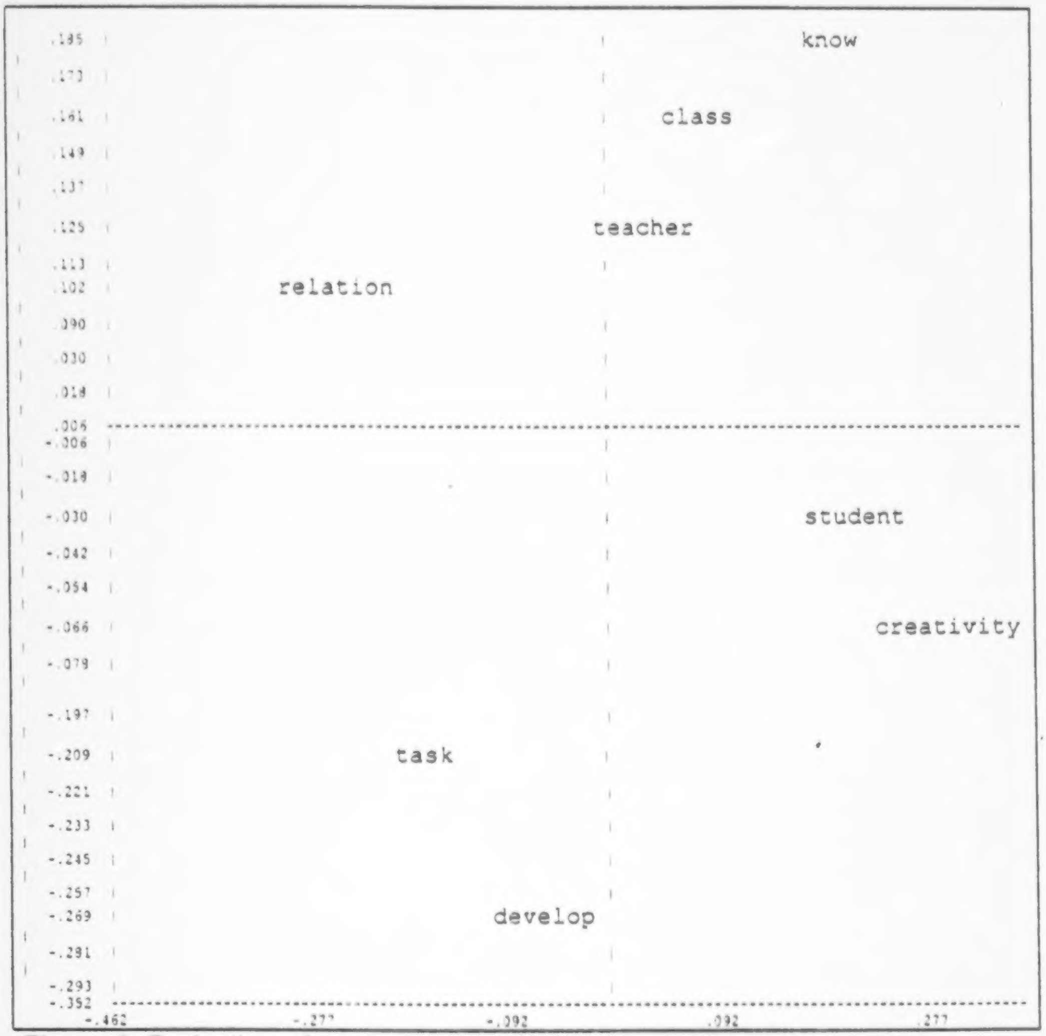

Figure 3. Projection of context categories in a two-axis space

As mentioned, the chart (Figure 3) allows the visualisation of the categories in a bi-dimensional space, suggesting that the category "development" may be included in the "task", and "class" and "know" in the "teacher" category, therefore resulting in five research categories (teacher,

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student, creativity, task and relation) that will be used as columns in the next analysis. "Creativity", although belonging to the same factor that "relation" and "student", was retained because this analysis did not reflect the fact that it appeared connected with the teacher and with the student, depending on the context.

Context Categories

The interviews were content analysed, and each unit of context (word or sentence with a specific meaning) was registered and grouped in a context category. Then, each context unit was rated under as many research categories as it was related with (e.g., "I need more time to do research", relates to "teacher", "task", and "creativity" research categories; "I keep myself distant from students", relates to the "teacher", "relation", and "student" categories), and the frequency of each context category, under each research category, was calculated, as shown in Table 106.

Table 106. Frequencies of each unit and context category, in each research category

Context Category	Unity of context	Research categories				
		Task	Relation	Creativity	Teacher	Student
Creation	creative discipline	1		1		
	creativity	1		1		
	creative teacher			5	5	
	first session		1		1	1
	progress constrn.	1		1	1	1
	make a project	1		1	1	
	explore with SS.	1	1	1	1	1
	little resources	2	2	3	2	3
	SS. are creative			4		4
	Absence of comparison everything is	3		3	3	

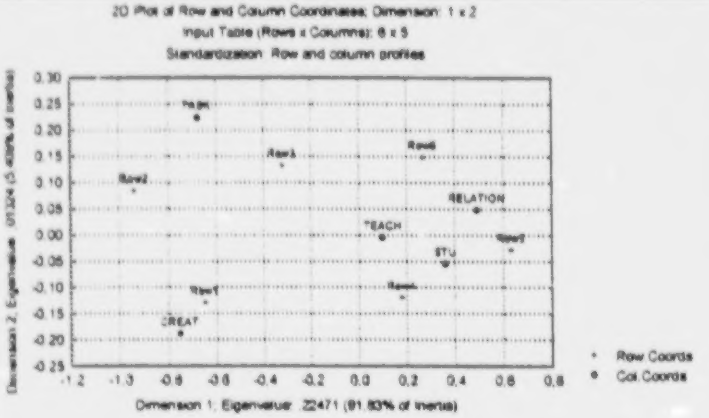
	questionable	4		4	4	1
	unique perspective	3		2	3	
	more time to do research	4		3	4	
Total		21	4	29	25	11
Job outside	other jobs	2	0	2	2	0
	new movements	4		3	4	
	things come as a snow ball	3			3	
	would like to be more observant	5	6	8	8	3
	transformation	7	7	7	7	7
Job inside	what I do	1	1	1	2	1
	SS are not motiv.					1
	adapting content to the students	2	4	2	4	2
	communicate		1		1	1
	comparison with real life	3			3	2
	SS do not fall in the same mistakes	1			1	
	teach knowledge	1			1	
	more than one perspective	3		3	3	
Total		30	19	24	37	17
	SS are diff.-things must be said diff.		8	8	8	9
	don't like to say the same twice	1		1	1	1
Diff. student	have to meet SS		5		5	5
	projects change	3	3	3	3	3
	motivate		1	1	1	
	prepare according to age	1			1	1
	adjust teaching	2	4		4	3
	need more time		2		2	2
Total		7	23	13	25	24
	I am a friend		2		2	2
	class relationship		4		4	4
	outside class		3		3	3
	role distance		2		3	2
	learn with students		1		1	1
	to be with people		1		1	1
	good relationship		2		5	2
	gay person		1		1	
Relationship	communication		4		6	2

	support the student		5		3	5
	worry about SS		1		1	
	not censure SS		1		1	1
	to scold		1		1	1
	use nicknames		1		1	1
	use humour				2	
	relation out of class		5		7	6
	need more time		3		3	3
Total		0	37	0	45	34
	create with student participation		1	1	1	2
	evaluation	1	2		1	2
Participation	need more time	2	2		2	2
	not in the beginning	1			1	
	class participation	2	7	2	7	7
	invite to participate	2	4		4	3
Total		8	16	3	16	16

Using the context categories as rows, and the research categories as columns, the frequencies (totals) shown in the table were submitted to a correspondence analysis, resulting in a distribution of research and context categories in a two-dimensional perceptual map.

As may be seen in the chart below (Figure 4), the teacher considered creative places himself in a central point of a space defined by two axes: the main one, horizontal (explaining 91% of the variance), with "relation" at one end (positive), and "creativity" at the other (negative); the other axis, vertical (explaining 5% of the variance), with "task" at the positive end, and "creativity" at the negative.

This distribution of space, supported by the data shown in Table 105, provides a clear picture of how the subjects see themselves in the whole spectrum, in accordance with the findings reported in the previous chapter. Creativity must be seen as an isolated aspect of teaching, and as a kind of target, that neither the teacher nor the students should pursue for its own sake: moving the teacher towards creativity might imply his or her separation from the students and from teaching, while moving to the task would divert the teacher from creativity, connecting him or her with the task aspect of teaching only. It is possible that the discourse of a less creative teacher would be represented in a perceptual map where "task" and "teacher" appear close together; the discourse of a student, thinking as if a teacher, would probably be represented by placing "creativity" in the same cluster as "teacher", "relation", and "student".



Legend of rows: 1 - creation; 2 - job outside (the school); 3 - job inside (the school); 4 - different students (implications of); 5 - relationship; 6 - participation (of the students)

Figure 4. Projection of context (row) and research categories (column) in a two-axis space

Table 107. Mass and Quality of each research category, and its co-ordinates and Inertia in each dimension.

Research categories	Co-ord. dimens. 1	Co-ord. dimens. 2	Mass	Quality	Inertia dim. 1	Inertia dim. 2
Task	-.68	.22	.14	.98	.28	.52
Relation	.49	.05	.20	.99	.25	.04
Creativity	-.76	-.19	.14	.99	.37	.39
Teacher	.10	-.01	.31	.42	.01	.00
Student	.36	-.06	.21	.95	.12	.05

Figure 4 and Table 107 allow us to visualise how task and relation oppose each other in this perceptual map, as happened with the quantitative analysis, in the previous chapter; while creativity occupies a dominant position in half of the space defined by the two axes, revealing its importance in the definition of the whole dimension of teaching. The teacher, occupying a central position, reflects the results obtained in the questionnaire by the lecturers considered creative, where they scored similarly to the students, as to the relationship aspect of teaching, and to their peers, as to the task aspect. This configuration also reveals the way these lecturers separate creativity from their relation with the students, but also from their task as teachers, considering it as an opposing direction of each dimension. This does not mean that creativity opposes teaching, but rather that it is its main aspect.

Class Observation

As stated in the Procedure, 15 interviewees from all seven Schools were asked to designate a date so the performance could be observed, with criteria dependent upon the opportunity, the discourse stated in the interview, and the interest of the subject matter to the researcher. Art classes, in general, received some priority in this choice.

All of the observed lecturers complained about the difficulty in examining in just one session something that takes a long period to develop. All gave various suggested dates, leaving the choice to the observer.

Each class observation lasted between an hour and a half to three hours, and it was not possible to confirm each person's concepts of teaching, during the pilot study (four lecturers interviewed and observed), except in the case of the second interviewee, who seemed to be a natural "entertainer" of the students, with a particular communicational ability. He elicited student intervention every 3 to 7 minutes, and maintained interest by telling jokes, giving examples, telling stories, exhibiting a vast knowledge of the "business world", and using attractive visual transparencies. Students interacted with the lecturer (but some of them never spoke), not between themselves; took occasional notes and sometimes maintained a noisy conversation, not on the subject; concepts seemed theoretical and with little practical application .

Both women interviewed next exhibited a similar style, with occasional questions to the students, basically about theoretical concepts, with little or no feedback from class; students seemed to pay attention, mainly by taking notes, and participating in the few discussions provided (not very interesting nor related to practical subjects). The fourth lecturer interviewed delivered a conventional lecture, with little or no intervention from students.

The lecturer connected with accountancy behaved as described in the interview, lecturing with a good rhythm, loud and clear, with little room for student intervention. Eventually asking students questions, reprimanding them when the answer was far from acceptable, and treating them with a certain aggressiveness, as if they were naughty teenagers. Students took notes all the time and seemed attentive, accepting the teacher's behaviour as a natural way to deal with them (in the observer's judgement, students from other Schools would exhibit a different reaction). If it was not for the designation, little in this performance would lead the observer to classify it as a possible example of creative teaching. Nevertheless, when more attention was paid to the detail, it was possible to notice that some almost unperceivable behaviours could make some difference (e.g. changing the tone of voice, pace and type of movement, eye contact with students every time that he was not writing in the board, fast comments using some humour, a friendly tone of voice in a reprimand).

The lecturer teaching music composition provided some interesting examples of musical analysis (delightful to the observer), using humour occasionally, telling a story (a natural gifted story teller, in the observer's judgement), asked few questions and required little intervention from students, until the last part of the session, where that participation was increased. Like the other lecturers before him, he shows enthusiasm and trust in the subject matter, and it is possible to confirm the fact that students seem to share that enthusiasm or, at least, to pay attention.

The first dance teacher observed directed a class where each student was supposed to present the choreographies he or she had created. All students watched each exhibition, applauding and commenting at the end of each one. The teacher criticised every exhibition, finding little to praise in each one of them, pressing against time limits, calling attention to errors, and resuming the cycle of student-exhibition, teacher-criticism, in a rather negative climate. This was another case where little could be said to coincide with any sort of behaviours considering creative, besides treating the students by their first names, using some humour, and establishing a short discussion towards the end of the session. Nevertheless, the students seemed to accept the lecturer's behaviour in a natural way, without exhibiting any signs of constraint.

The medical doctor interviewed was observed in a session with 20 students, where she used simple group exercises to explain the subject matter, discussions and questioning. The students seemed attentive, but passive, taking few initiatives or putting questions, till one of the students brought a funny story into the class; then the lecturer interrupted the discussion that followed and returned to the subject matter, which seemed a bit dull, and the explanation became less and less interactive, till there was none. Towards the end, the lecturer got herself involved in a discussion outside the lesson objective, before summarising and anticipating the following session. Again, besides the use of group exercises, little could be said to belong to a creative teaching approach.

The second dance teacher to be interviewed began by changing in class, starting with a series of dance exercises to train the body expression of the 24 students present. Each exercise was commented on and explained, and corrections were made and explained on an individual basis, using also rest periods. Sometimes students complained of the intense rhythm, and one of the students even left the class because of a muscle injury. Students stop, take a break, drink water, leave or enter freely, and after one and a half hours of intense movement, the session ends with applause.

The first drama lecturer ran a session with 24 students, also extremely busy, in which a series of interesting group acting exercises were proposed, in such a way that each student had to invent his or her part, and to change roles constantly, in a series of different sketches. The students gave what the observer considered to be a wonderful performance, imagining situations that could make the others laugh to tears. The lecturer did not seem impressed, and kept on forcing the students to increase the rhythm of the performance, for more than 2 hours, in spite of evident signs of fatigue among the students. As he explained, this strategy is devoted to training the students in today's job environment, in which an actor may have to be in three or more different places in one day, to play small parts in the cinema, theatre or television. Students seemed to accept this view, and not to expect any praise for good performance.

The film-editing teacher talked with four students only, in what may be considered more a working session, in an editing room of a cinema company, rather than what we consider to be a class session. No single behaviour could be seen as an example of creative teaching, nor could the students be recognised as such, as there was no difference between school work and normal real project work, in which they were involved.

The last drama lecturer interviewed, in a class session about one of Shakespeare's plays ("Romeo and Juliet"), with twenty students, the climate was similar to what happens in a normal rehearsal, with constant replay, criticisms and explanations, in which only the students who enter the play seem to be attentive. Some stories and humour, mediated the intensive criticism exhibited by the lecturer, in a way similar to the examples already listed.

In a large room, with 36 students, the performance of another lecturer of the Teacher Training School, was observed during two hours. The session was a mixture of lecture, resorting to extensive transparencies, and class exercises, within a behavioural framework that looked more appropriate for school children, rather than to adult students (e.g. speaking louder than necessary, as if the group was a noisy one, patronising treatment of the students, simplistic nature of the exercises and discussions, repeatedly asking for less noise). Students seemed attentive, at the beginning, but progressively distracted, and looking at their watches, towards the end. The lecturer had to handle too many students, and she looked tired, towards the end. Besides smiling frequently, and the fact that she used group exercises, it was not possible to devise behaviours that could be classified under the umbrella of creative teaching.

Another lecturer of the same School, teaching mathematics and education, followed the exercise approach, using specific materials and team work to train the future teachers, explaining each step, and approaching any of the 26 students that were present who seemed to be having any difficulty. The majority looked concentrated on the exercises, but occasional outside-class subject talking occurred.

The lecturer responsible for teaching music to drama students used a humorous but disciplined approach, where the students seemed to feel free to explore something they liked, and to comply with the teacher's requirements. Asking questions often, and inviting students to participate, the teacher gave demonstrations of correct performance, and then demanded the same from the students, till, by repetition, the desired result was achieved. Contrary to all his colleagues in art teaching, whose classes were observed, this one often praised the students' performance.

A three-hour session of a lecturer teaching stage performance to singing students was observed, and the first part was devoted to training each of the eight students individually, moving then to class rehearsal. The session began with only two students, and they were constantly entering and leaving when not under training. The lecturer demonstrated a complete knowledge of each student's work and possibilities, and did all the work (playing the piano, correcting the singing, explaining) that normally would be done by him and an accompanist. As with some of the faculty observed previously, he welcomed every latecomer, and had always a nice word to greet them.

The last lecturer whose performance was observed was the recorder teacher, with only one student for two hours; in a complete tutoring style of master-apprentice, or coach-athlete (in this case the coach performed much better), both seemed involved in the learning process. The lecturer used a relaxed and patient approach, demonstrating, correcting, praising; the student followed every demand and correction with signs of agreement and respect. Sometimes, lecturer and student played some parts together, as if they were in a performance, other times they spoke of related subjects, such as the prices and types of instruments, shows that were planned, etc. Interesting the way the student looked at the lecturer to receive visual approval during performance.

In the end it was not possible to evaluate each interviewee against the observed practice, nor to learn or collect interesting examples from it. Although it is not possible to draw a conclusion from such a short observation, it is not likely that any of these lecturers applies a specific creative teaching method or technique, nor a constant and thoughtful approach to teaching and learning, drawn from study and research. Some, more than others, exhibited a style where communication with the students seemed to be a constant worry, although not always achieved satisfactorily. Even they did not say so unless specifically asked, all of them showed the common factor of liking their students, and what they were doing, and to have an affective link established with them.

Concluding Comments

To start by summarising the way the selected lecturers saw themselves as teachers (and why they thought they had been chosen): when asked about the reasons they thought they had been chosen, they did not seem surprised, and they showed satisfaction. Even though the large majority said they did not recognise themselves as creative, or original (one said he "liked to build up from someone else's idea"), attributing the reasons for their selection to factors like the practical nature of the subject they taught, their professional activity, or their students' liking for them. In the end they thought they were good teachers, and they were pleased the students thought the same. While students mentioned surprise, team work, fun, and establishing practical analogies and examples, as different reasons for choosing each one of these lecturers, what became clear was that they had a liking for all of them, that is to say, they felt these lecturers enjoyed what they were doing and were close to them.

Lecturers saw themselves either as intuitive "actors on stage", amazing the class (one said that "students are pleased if they like the show") or "salesmen", or as "negotiators" with a responsibility to reach every student and to learn from them. The majority mentioned their availability outside the class, flexibility as to deviant behaviours (e.g. late arrivals), close (friendly approach, "tutoyant" students), and distant (not a "comrade" to fraternise with) at the same time. Even though they had clear objectives to attain, and seemed sure of themselves, they were willing to build up their classes out of their students opinions and pace, as if it were a master-apprentice situation; it was a sort of "risky class adventure", where anything could happen, and it would be impossible to have the same subject matter taught twice the same way, as each session itself was often a "surprise" to the teacher, which they enjoyed.

Some of them called attention to the necessity of being a good professional to be a good teacher ("The one who does not 'engineer', 'goes stale" ["Quem não 'engenha', 'engelha"]), when doing both activities; especially in the arts and engineering fields, all were unanimous in considering that a poor performer cannot be a good teacher, even though a great artist is not necessarily a good teacher.

Seeing themselves as experts in making analogies between real and academic lives, demystifying science and the subject matter, and in "feeling" the class, they preferred to emphasise communication instead of content, as "students understand just a little bit of the subject matter, and so it was better to concentrate on communication", and to alert the students to everything that surrounds them, creating a climate favourable to the sharing of experiences. They believe in their students' creativity, and so they participate in their initiatives and struggles and, if necessary, they stand up for them.

Even though they recognise themselves as popular among the students and, sometimes, among peers as well, many called the attention to the dangers of being too "nice", not because of excess of familiarity (all seemed perfectly sure of their positions), but because they thought students would avoid criticising their action in order not to hurt them, and so provide an inaccurate feedback.

Many (among male lecturers) used the term "seducer" to characterise their action in class, followed by comments about the need of maintaining a social distance. Females stressed social support as their main characteristic.

Even though it is possible to detect patterns in the speech of these lecturers, what became clear was that they were unique, and even if more lecturers were interviewed, one would always be able to find a unique approach to teaching.

As to the ideal, all interviewees exhibited high self confidence (one said he thought he was "the best there is"), and being at an "equilibrium" with the students, in a way that they would be required to change only as the students changed; and also that the perception of effectiveness was not a major concern. They seemed to be "working within our limits, even though we could always do better". When asked about how they would like to be, many talked about outside constraints, and the opportunity of having more time for themselves and for the students outside class. Referring to the students, some said that they wished they could develop a language closer to them and, especially, being able to diagnose a student's needs and potentialities more quickly than what happened now.

Almost all of them talked about objectives they would like to implement in the near future, connected to self development (opportunities to make reflections about their experience, or to acquire academic qualifications, or to keep up to date with the latest technologies), curriculum development, equipment acquisition, note publication, and exploring new subjects to teach and research.

When asked to describe the creative teacher they tended to continue the description of themselves, stressing the personalised approach to the subject, flexibility, and mastery of the subject matter. Some definitions were proposed, related to the transformational leader type, which correspond to the innovative, task-oriented teacher:

"(...) to be half way to being a good teacher"

"(...) a communicator first"

"(...) someone who leaves his or her mark"

"(...) the one who 'dessacralises' the subject matter"

"(...) a seducer, who 'inflames', 'infects', turns the students into subject matter 'addicts"

"(...) is to be able to catch the cultural evolution of the students, to feel the communities' objectives in education, to invent the future and see what kind of knowledge will be necessary then"

"(...) is to create something new with the students"

Others corresponded to the "facilitator" type leader:

"(...) something that comes from an humility of creating our practice out of our own evaluation, with a reference that does not have to be perfect (may not be a role model), that must not try to impose itself"

"(...) is to live between light and darkness; to have an idea and not to have the image of that idea"

"(...) to try to understand if what each student brings out from school has to do with his or her wishes"

"(...) being ethical (relationship), before being aesthetic (task)"

"(...) to be able to discover what the student has to say; what he or she is able to do; how is his or her expressiveness reveals itself"

All of them gave a similar picture of what they considered a non-creative teacher: "One who 'intones"; "lets the knowledge flow without retaining anything"; "to read in class", "without passion, reproducer, fake", "to deliver the subject matter without being attentive to the students' reactions", "does not live the moment", "grey", "someone who does not take the students to question themselves and the subject matter, more than learning facts and concepts", "a teacher who values concepts more than the way to communicate them to students"; "students already know what is going to happen".

In an attempt to provide a picture of the match between the discourse of the teachers considered creative and their results in the questionnaire, a systematic approach to their discourse was developed, by submitting five of the 26 interviews, taken at random, to the statistical method designated *correspondence analysis*, in order to obtain a perceptual map of their own words and expressions, with the categories used in this research

The first type of categories, designated as *research categories*, were obtained by submitting the interviews to successive simplifications of the wording used, and then factor analysed by correspondence analysis; the second type of categories came out of content analysis, where expressions were used instead of words only, and then clustered in what was designated as *context categories*. From the first correspondence analysis, five categories - task, creativity, relation, teacher, and student - came out as the main ones, and were used as columns in the second correspondence analysis. Context categories, used as rows, were obtained by simple content analysis.

The resulting perceptual map in Figure 4, supported by the data shown in Table 105, provided a clear picture of how the subjects see themselves in the whole spectrum, in accordance with the findings reported in the previous chapter. Creativity must bee seen as an isolated aspect of teaching, and as a sort of target, that neither the teacher nor the students must pursue for its own sake: moving the teacher towards creativity might imply his or her separation from the students and from teaching, while moving to the task would divert the teacher from creativity. The resulting perceptual map allow us to visualise how task and relation oppose themselves in this perceptual map, as it had happened with the quantitative analysis, in the previous chapter, while creativity occupies a dominant position in half of the perceptual map defined by the two axis, revealing its importance in the definition of the whole dimension of teaching.

As to class observation it was not possible to detect patterns or to learn much from the lecturers, given the experience of the observer with creative teaching techniques. It was not possible, also, to detect similarities or differences between discourse and action, but in two cases (the "salesman" and the "muscular approach"), given their very distinct nature of teaching and the originality of their discourses. It became clear that none of these lecturers used any specific method or technique, nor a constant and thoughtful approach to teaching and learning. Some, more than others, exhibited a personal style where communication with the students seemed to be a constant worry, even though it was not always a verbal interactive communication. If fact, many of them seemed to have made an option for the lecture type of lesson, while using all possible skills to detect the students' reactions to the talk, in a sort of actor-public rapport.

In every case it was patent that these lecturers liked what they were doing and their students, and exhibited high consideration for them; they also considered it essential to be good at the profession connected with what they were teaching, and to be expert in the a subject matter.

CHAPTER THREE

DISCUSSION AND CONCLUSIONS

This chapter describes the findings of this thesis, in accordance with its objectives, research problem and propositions; it moves then to commenting on its original contributions, as well as its limitations of the theoretical assumptions, instruments and methods used; and it concludes with the profile of the typical creative teacher, in terms of the concepts illustrated by concrete examples, and proposals for future research.

The Findings of This Study

Even though the first proposition of this study referred to the ways teachers and students' conceptions of creative teaching differ, this is not the central issue of this investigation, but just a first step to understanding how and why both actors value different things in teaching. In fact, even if teachers and students understand creative teaching in similar ways, that does not mean that they see themselves as teachers performing the same way, nor that they value creativity and effectiveness accordingly.

What seems to matter, then, is to assess how each player - teacher or student - imagines himself or herself as a teacher in reality (possibilities), and how he or she prioritises creativity and effectiveness in teaching (ideal), so that role construction may be understood. And to do that, the second and third propositions become the central ones, as well as the fifth, and that is why the discussion of the findings will start with them.

It must be stressed that the first proposition tries to assess how people characterise a typical creative teacher, as well as a non-creative one (the first two elements/columns of the questionnaire mentioned "A more creative teacher", and "A less creative teacher"), in terms of its perceived creativity and effectiveness. The following propositions refer directly to creativity and to effectiveness in teaching (the last two elements/columns of the questionnaire were "As I think I am/would be as a teacher", and "As I would like to be as a teacher"), in terms of what happens in reality, and how people value these aspects while imagining the "ideal teachers" that they would like to be.

The first proposition has been assessed only in two Schools (the ESCS [Media School], and the ESEL [Teacher Training School]), while the remaining propositions address the whole sample.

Differences in Perceptions of Self as a Teacher

This study provided strong evidence to support a positive answer to the research problem ("Do students and faculty value creativity and effectiveness in teaching in different ways?).

In fact, students and faculty of the Lisbon Polytechnic Institute seem to concentrate on different aspects of teaching and to provide different orientations as to what makes the core of the activity: creativity, seen as the outcome of a successful communication between students and teachers; and effectiveness, seen as the task aspects of teaching, where the student does not play an active part, especially the teacher's actions aimed at preparing and delivering the content materials to the student, and assessing the learning that has taken place.

Students seem to concentrate more on the relationship aspects of teaching (creativity), while imagining how they would be (real) as teachers, and how they would like to be (ideal), while providing similar perceptions to faculty as to how effective they would be as teachers (real), and attributing less importance to that effectiveness in the definition of the ideal.

This tendency has been observed in the whole sample and in every one of the seven Schools of the Lisbon Polytechnic Institute, but the ISCAL (Accountancy), where students scored lower than lecturers in the relationship factor, but not enough to produce statistically significant difference ($p<.07$); at the ESD (Dance School) the lecturer sample was not big enough to draw conclusions. As to the task factor (effectiveness), the students from the ISCAL were also the only ones who imagined themselves as significantly less effective than faculty, if they were teachers. It became clear that these students exhibited a completely different perception of teaching from the rest of the sample, and so they did not invalidate the findings. When compared to the other students, these: scored higher in every element and factor, and so were more distant from creativity and effectiveness in teaching; this distance tended to get smaller with the years (and with older students, who come to the School at night), while in the other Schools (e.g. ESCS) either it was the opposite that happened (first year students were the ones with lower scores), or there was no difference (only within some courses).

This separation of conceptions of teaching, in accordance with the role performed, is supported by another finding, related to the last proposition made ("Creative teachers will tend to score close to students, in the way they value creativity in teaching, and close to faculty in effectiveness"), where it became clear that the teachers who were selected as examples of creative teaching did not differ from students, in their conceptions of creativity in teaching, neither from their peers, in effectiveness. Even though they represent a small group (23, out of 62), in comparison with the whole sample of teachers (n=912), the differences were significant enough to support the proposition. Their scores in the task factor (real) were also different from those of the students (which did not occur with those of their peers, in the real element), reinforcing the finding that creative teachers tend to have a better role clarification than their less creative colleagues, and that they succeed in balancing both factors (creativity and effectiveness) in a more effective way than their colleagues do. In fact, orientation towards creativity and effectiveness, among faculty, seemed to be of an exclusive nature, that is, when a lecturer has an orientation to creativity in teaching, he or she seems to do that at the expense of effectiveness, and vice-versa. This tendency was not visible among students, when imagining themselves as teachers.

The correspondence analysis made to five of the mentioned 23 interviews allow us to visualise how task and relation oppose each other in their perceptual map, as happened with the quantitative analysis. The teacher, occupying a central position in the perceptual map (Figure 4), reflects the results obtained in the questionnaire by the lecturers considered creative, where they scored similarly to the students, as to the relationship aspect of teaching, and to their peers, as to the task aspect. This configuration also reveals the way these lecturers separate creativity from their relation with the students, but also from their task as teachers, considering it as an opposing direction of each dimension. This does not mean, to them, that creativity opposes teaching but rather that it is its main aspect.

Another interesting finding is the possibility that there exists some kind of identification between students and lecturers, and that both tend to converge in their preferences for creativity or effectiveness in teaching.

In the case of the ESEL, for example, where students showed the strongest preferences for creativity in teaching, the same occurred with their lecturers. As to effectiveness in teaching, while first year students revealed the strongest preferences, lecturers showed the weakest of the whole sample of faculty, and the students moved in their direction each year, showing increasingly lower preferences for effectiveness. At the ESCS, students scored lower (high preference) on creativity in teaching, in their first year, while lecturers scored high, and so did their second and third year colleagues. At the ISCAL, the same occurred, but in the opposite direction: in fact, students had the highest scores (lowest preferences) of the whole sample, while lecturers scored lower, and so students changed their orientation over the years, at least in effective teaching, in the direction of faculty. This way, students seem to follow the teachers' orientation, in a sort of role making conforming to faculty's preferences.

Besides the independent variable "Role", which proved to be the best predictor of all controlled variables, "School" also appeared as an important variable in defining differences among the criterion variables used. In fact, the study presented evidence that different students choose different Schools and courses, and that the students change their conceptions of teaching over the years, in the direction of those of their teachers, as stated before. Even with some exceptions, students seem to enter higher education with certain expectations about creativity and effectiveness in teaching, which tend to become reduced as they progress, in such a way that we may speak of a sort of "standardisation" factor, strong enough to appear in the results of a simple measurement instrument such as the one used in this research. As shown in the first chapter of this part, the third-year students exhibited similar scores (except the ones from the ISCAL who, even though lower than their colleagues of the first year, still reported higher scores than the rest of the sample). As to effectiveness, only those at the ISCAL moved significantly in that direction over the years, while the ones at the ESCS progressively reduced their notion of importance of this aspect of teaching.

Besides the case of the students of the ISCAL, whose case has already been presented, those from the ISEL (Engineering School) seem to have lower expectations of creativity in teaching than the ones from the ESEL, with the ones from the ESCS and the Art Schools somewhere in the middle.

As to the lecturers, only the variable "School" produced some variation in their conceptions of creativity and of effectiveness in teaching, as lecturers from the ESEL scored lower than their colleagues of the ESCS.

Nevertheless, it seems that it is not the organisational environment, nor its correspondent scientific field that originates differences among faculty, but a convergence of factors that cluster around the predictor "School". For example, the variable "Teaching Experience", used as co-variate, did not reveal enough statistically significant influence, but its visible tendency supported what may be one of the reasons why the scores at the ESCS appear higher than at the ESEL. In fact, the average teaching experience of faculty was shorter at the former (9 years), while at the ESEL, faculty had the longest average teaching experience (19 years), and the nature of that experience was connected to primary and secondary level teaching, while at the ESCS the experience was more as a company professional. The ESEL had also the cumulative effect of "Sex" (more women as teachers) and "Academic Qualifications" (higher proportion of M.A. and PhD), as reasons to show more proximity to the image of creative teaching.

This way, it is probably for personal reasons, not organisational (context or culture) ones, that lecturers showed some differences in their own perceptions as teachers, when referring to the creative teaching concept. As to effectiveness no differences were found.

The Art Schools did not reveal a defined pattern of perception different from the other Schools, but if it were not for their reduced number of subjects, they would have been taken isolated. Even with reduced numbers of subjects, the analyses made provided enough evidence to detect differences among their students, with the dance students favouring creativity, and music students closer to effectiveness. Meanwhile, other kinds of difference may be expected to be found among the various courses in each School, but apart from those at the ESCS, none of the cases showed evidence enough to deserve a separate analysis.

The instrument could not be used to detect differences between courses, due to the reduced number of subjects in some cells, and so few distinctions can be made at course level. However, results provide enough evidence to make inferences, within an acceptable estimation error, from groups within the variables "Role", "Sex", and "Year", when taken in isolation and, in the majority of the cases, to the "School" variable as well, and to its interaction effects with "Role" and "Year".

The predictor "Sex", when not associated with other independent variables, seemed to produce significant variation in perceptions of self as creative, but only among students. In fact, female students tended to see themselves as closer to creative teaching. As to effectiveness, "Sex" predicted some differences only among faculty, and only in the ideal element (importance), with male teachers scoring closer than women to effectiveness in teaching.

Aspects like "Subjects Taught", "Length of Experience", and "Academic Qualifications", alone or combined with "Sex", did not provide evidence strong enough to support Fryer's (1989) findings related to "pupil-orientation" of female teachers. In fact, even if women are more "person-oriented", as Fryer and Collings (1990) maintained, this meaning "a preference for dealing with, or involving oneself in, emotional, social or interpersonal issues, as distinct from impersonal ones", only when there is convergence of factors (length of experience, academic qualifications, and non-science teaching), female perceptions of teaching move closer to creativity. This way, their perceptions can be expected to differ only when a series of associated factors converge, as in the case of the ESEL, as reported, or in the case of the validation study, when nursing teachers (almost all women, with a long teaching experience) scored closer to creative teaching than their students. Nevertheless, it must be recalled that this study and the ones reported used different measurement instruments, and therefore both could be addressing different outcomes.

Even though this research is not intended to assess these type of variables, but only to see if they are powerful enough to affect the variable "Role", some doubts can be assumed as to the direct correspondence between "person orientation" and "student orientation", or between "person orientation" and "creative teaching". According to the results, we may perhaps speak about the existence of a sort of "feminine" style of teaching, and a "masculine" one, which when linked to the students' gender (either male or female majority), may bring interesting results as to perceptions of creativity in teaching, which will be discussed later in this text.

The findings did not support those of Fryer's (1989), in that older teachers tended to prefer a more instrumental approach. In fact, even though not in a significant way, the tendency seems to be the opposite. Nevertheless, it must be recalled that this research deals with higher education faculty, not with primary and secondary education level teachers, as in the above study.

Perceptions of the Typical Creative Teacher

Even though the first proposition ("Students and lecturers will characterise creative teaching in similar ways") predicted a null relationship between the subject's role and perceptions of creative teaching, the results provided a weak basis either for supporting or rejecting it, so that the marginal evidence founded may seem too dependent upon the context, as the only two samples (ESEL and ESCS) used to verify the proposition, proved very different, as to their populations. In this case, the variable "School" may come to explain more variance than the variable "Role", which was supposed to be examined free from significant bias. It could be expected, for example, that students from the ISCAL would score differently from faculty, but that those from the other Schools would not, if they had been included in this part of the investigation. It must not be forgotten, also, that the majority of lecturers did not return the questionnaire, and although we do not know the tendencies of that "silent majority", we may suppose that they may not be very fond of the creative (and effective?) view of teaching.

As reported during the first chapter, lecturers and students of both Schools (ESCS and ESEL) scored differently when characterising creative teaching, in the relationship factor, but not in that of effectiveness. Nevertheless, the former difference stood up only when the whole sample was subjected to a MANOVA, using both elements at a time, or to a t-test, using the whole sample, and not when each element (real or ideal), or when each School was analysed separately, this meaning that the variable "Role" does not produce enough variation among the criterion variables. This way probably we may not state that students and faculty have different ideas about what creative teaching really is about.

Even if the concepts of creativity and of effectiveness in teaching are seen in similar or in different ways, by students and faculty, both players value these factors differently, as demonstrated in the preceding section, because when they imagine themselves as teachers, differences really become apparent.

An interesting fact occurred sometimes with members of each School's management, when showing them the list of creative teachers made by the students. Especially in the Art Schools, these lecturers from the administration tended to point out that some "undoubtedly" creative teachers were not on the list, whereas they were highly regarded as creative professionals. This way, faculty probably tends to mix teaching and professional performance (or research), while students tend to concentrate merely on the teaching aspect.

Supporting this view of absence of differences in the perception of creative teaching, is the agreement as to what "uncreative" teaching is, in both teachers and students. Also, it is important to stress the fact that faculty did not differ according to the variables considered ("School", "Length of Experience", "Sex" and "Academic Qualifications"), or their interactions, but students did (e.g. entry students from the ESEL scored creative teaching higher in effectiveness than students at the ESCS; entry students from both courses, at the ESCS, scored creative teaching differently as to the relationship factor).

The differences found among students support those presented in the preceding section, and so different populations of students seem to have chosen these two Schools, as entry students differed in their conceptions of teaching, depending on the School considered. This difference was more related to task aspects, which are more closely related to the effective teaching concept, rather than to creative teaching aspects. Also, different populations seem to have chosen the two courses at the ESCS, and so entry students showed differences in their conceptions of teaching. These differences appeared more related to relationship aspects, rather than to teaching effectiveness, as far as creative teaching is concerned.

As reported in the preceding section, the evolution of the students within the Schools seems to "standardise" their conceptions of teaching, so that in their third year, every course revealed similar scores. Lecturers' conceptions of creative teaching were closer to those of third year students, rather than to those of the first year.

Distance Between Real and Ideal Perceptions

Proposition number four ("Lecturers will perceive their actual performance [real] as further from what they think is important [ideal], in terms of creativity and of effectiveness, than students will theirs") leads to some final comments on differences in perception between teachers and students. The results obtained provided support for the proposition, as ideal images of teaching differed significantly from real images in that they were closer to creativity and effectiveness in teaching. This difference occurred no matter what the role or the School considered. Also, lecturers seemed to experience more difficulty than students in combining real and ideal perceptions of creative teaching, but not when dealing with teaching effectiveness.

This separation between students and faculty has probably to do with a deeper awareness, among lecturers, of the teaching reality and how it should be, while the students did not imagine it being so different, as far as the relationship aspects are concerned.

As to the absence of differences between real and ideal task elements, it is interesting to notice that while effective teaching appeared related to the skills and knowledge aspects of teaching, people may reject the possibility of being too dissatisfied with their present performance, as lecturers, or not being able to reach an acceptable standard of teaching, in the case of the students. In the case of the relationship aspect, things did not seem to work out that way, and people probably feel that emotional and personality aspects are more difficult to change in the direction they would like to, and so creative teaching seems more out of reach for lecturers than for students, perhaps simply because of the kind of role that they both perform - to the students it is clearer what must be done to establish a good relationship; to the lecturers, what must be done to establish a good relationship with the students may be in confrontation with the kind of role that they are expected to perform.

The Limitations and Contributions of This Study

Before presenting the limitations and contributions related to the instrument, and the deficiencies of the sampling procedures used, the theoretical constructs will be discussed, in order to obtain an adjustment between them and people's concepts, as the whole research was based on empirical investigation, and in the way the subjects perceived the reality under study. Therefore, the conclusions related to the theoretical constructs of creativity will be examined in the following sections, before proceeding to make comments about symbolic interactionism and role-theory-based leadership models, as well as to the limitations and contributions of the instrument and the deficiencies of the sampling procedures.

As will be explained towards the end of this thesis, the fact that the major findings of this study are also its major limitations is precisely because all that is described is not fully supported by existent theory and research, known to the investigator, and is therefore an attempt to explore scientific paths that are not yet sure. The possibility of committing errors is thus increased, and may be seen as a limitation of this study.

The Theoretical Construct of Creativity

To understand better the kind of problems that this study had to deal with, we must go back to the first chapter of the literature review, to recall the difficulties in defining the construct of creativity, and in providing a link with people's conceptions of the term.

Following Sternberg's (1991), Miller's (1986), and Isaksen & Murdock's (1993) doubts about the possibility of providing an encompassing definition, it was stated that the term "creativity" could be seen either as a social concept, expressed by people's implicit theories, or as a theoretical construct, developed by researchers in the field.

Looking at its theoretical definitions, and after carefully analysing the propositions evidenced by Kasof (1995; 1995b), it was possible to conclude that the construct of creativity was first (and still is) used in the literature to designate something perceived by others, as in the definitions of Amabile (1983), and Stein (1974), in what may be designated as *hetero-attributed creativity*, which results in the construction of creativity as something pertaining to the *communication process*, or to *innovation*. Seen as a sort of "persuasive communication", in which the creator is the source, the original product the message, and the judge or audience is the recipient, (Kasof, 1995b), creativity enters the broad domain of exceptional personal influence (Sawyer, 1998; Simonton, 1988; 1995), and of the social processes of the making of a reputation (Ludwig, 1994; Jones, 1997; Mace, 1997), or just as a capacity to shift roles, in which the creator develops a dialog with his or her work, in a way anticipating the audience (Stein, 1974). Seen as innovation, creativity is connected to what is perceived as new by someone other than its originator, or as the "putting to use of an idea" (Kanter, 1983; West & Farr, 1990), entering the domains of production, adoption, implementation, diffusion, or commercialisation of creations (Kaufmann, 1993; Rogers, 1983; Spence, 1994).

Due to the difficulty of overcoming its conceptual limitations, there appears to be a tendency, in some of the present literature, to see creativity as a *self-attributed* construct (Baer, 1997; Runco, 1998; Kokot & Colman, 1997), getting back to Galton's initial construct, based on "intention and effort", and in the way the individual perceives reality and develops his or her individuality. Within this view, creativity is seen simply as "growth", or development, as in Otto Rank's conception of creativity, described by Menaker (1996), where the human will is presented as a central cause of action and creation. To him, "each individual is unique and carries within him or her the potentiality of creating something new, different and unexpected out of past experience (via the human capacity to internalise experiences of the outer environment and making [sic] it a part of the self)."

This way, one of the main sources of controversy in the literature - to see "big C" and "little c" creativity as different constructs of creativity, as a continuum of the same construct, or as a continuum of separate constructs - appears in a position favourable to the latter possibility, as the hetero-attibuted and the self-attributed conceptions mean different things.

The analysis of the construct of hetero-attributed creativity, proposed after Stein's (1993; 1994; 1995) designations of *creators*, *intermediaries* and *appreciators*, can also result in the conclusion that what is created cannot become into being without those who preserve it, either by understanding or communicating, as understanding is always understanding differently and the act of interpreting what is created, and make that interpretation meaningful to others (through communication processes), is also an act of creativity. Quoting Czikszentmihalyi (1988), "creativity is located in neither the creator nor the creative product but rather in the interaction between the creator and the field's gatekeeper who selectively retains or rejects original products."

Therefore, creativity may be considered as included in the "communication" and "innovation" processes, when seen as an attribution made by others, or as a self-attributed construct, when the judgement is made by the creator, himself or herself. Each one of these two views is compatible with the "little c - big C" creativity continuum, even though "creativity" remains an individual process that it is present in the creation process, as well as in the attributions made.

The definition of creativity as a self-attributed construct cannot go further than what is proposed by Baer (1997), which is "anything that someone does in a way that is original to the creator and that is appropriate to the purpose or goal of the creator". Recognising creativity as a self-attributed concept, which people use to describe the acts of every moment of existence, is then in a sense using implicit theories of creativity to understand that what is beyond creativity lies in deep human motives, and in the ways each individual organises and incorporates the perception of reality in his or her own self. Striving for mastery and perfection, in the expression of one's own individuality, and in the sharing of that expression with others, becomes the core construct of creativity, which may then encompass a wider array of activities, products, processes and performances.

Creativity seems to be then the process of communication between the creator (or the product) and the judges or audience (hetero-attributed), or between the creator and the product (self-attributed); as already mentioned, innovation seems to be more appropriate to designate the attribution made by the audience to the product.

Under this view, hetero-attributed creativity can only be measured through socio-cultural judgements, and is therefore context-dependent. The resulting measure is what results from the process of communication between the creator and the product, on one side, and the ones who make the judgement, on the other. This way, the theoretical construct relies on peoples implicit theories of creativity, i.e. in the ways they consider a specific product, person or process as representative of their conceptions of creativity.

The Theoretical Constructs of Creative and of Effective Teaching

As when referring to creativity, in the first chapter, "creative teaching" was also seen as lacking construct validity, while the concept used by laypersons carried meaning in everyday speech. As the research addressed teaching in higher education, this distinction became more confusing due to the various roles of the faculty, namely teaching and research.

One of the main problems was that, in the literature, creative teaching appears connected to certain traits, characteristics, behaviours and, especially, to techniques, methods and classroom arrangements, whose variety and complexity tend to make the term lose its heuristic value as a theoretical construct. Creative teaching tends to be confused with effective teaching, in the task aspects; here, descriptions of teacher and classroom characteristics appear as similar, when pursuing the "ideal teacher" image.

Another of the problems that we had to deal with derived from the fact that the other way that literature characterises creative teaching was by proposing it as opposed to certain styles or method, such as "traditional", or "teacher-centred". Thus, what normally appears in the literature is the comparison of the best of the former with the worst of the latter, introducing judgements about different conceptions of teaching, and thus giving rise to a never-ending argument, between proponents and detractors, about the effectiveness of each type of teaching. This way, the literature contributed more to defining what creative teaching is not, rather than what it is; and the "ideal teacher" trap is always present, just as in the teacher training courses, also discussed in the second chapter, and the way they try to influence the role construction and role improvement of higher education teachers.

As discussed, and following the orientations defined in the first chapter, creative behaviour in teaching, as seen through the eyes of the teacher, was defined after Spector (1983), as just "trying to improve", in such a specific way that "not even originality is important, but only by thinking through the key ideas in the text or lesson and identifying the alternative ways of presenting them to students", as Zeichner & Liston (1996) stated. Seen as self-perception, creativity is directed towards perfection, and it acquires the meaning of creativity, effectiveness, or excellence, according to those who evaluate the action of the individual, namely the students and faculty. In fact, the teachers that were interviewed did not recognise themselves as creative (as Fryer [1989] had already found), but as people making a continuous effort to become better professionals. As in the definitions proposed by the interviewees, to be a creative teacher is "to be half way to being a good teacher", or, as one of the lecturers put it: "more an attitude than a process. It is not by wanting to be different that one reaches creativity, but by wanting to state something, in a way that may tend to be destructive".

Seen as a hetero-attributed phenomenon, creative teaching was presented as just a more demanding criterion to evaluate teaching abilities, and to see it from the point of view of the student, which tends to favour relationship factors, while faculty's perceptions tend to rely more on task factors, more connected with effectiveness.

Seen as a self-perception of teachers, creativity appeared directed towards task improvement, or effectiveness, while keeping the student as the main reference. This way, teaching can only acquire the designation of "creative", when the teacher succeeds in establishing a successful relationship with the students, and is therefore an hetero-attribution.

Joining Contributions from Role Theory and from Leadership Theory and Research

The idea of using symbolic interactionism and role theory as a focal theory to this research arose from the need to use an instrument of measurement that could turn implicit theories into an organised theoretical construct - Kelly's grid procedure; while leadership theory and research provided the opportunity to find models that combined field investigation and the reported theories, so that they could be adapted to the teaching situation.

This way, symbolic interactionism and role theory provided a means to clarify the social relationship between the roles of teachers and students: the concept of "Role" was seen within a social structure, where the individual conforms to collective habits, and acts according to other people's expectancies; one creates a "self" between the control made by the attitudes of others and one's spontaneous behaviours, putting oneself in the place of the other, and responding as the other would do - *role-taking* - and by anticipating the consequences of one's own behaviour - *role-making*. This way, a teacher may consider other teachers as the "significant other", and "take" their role accordingly, or also bring the students to that position; if this is the case, the effort of imagination that has to be made is much stronger, due both to role distance and to the diversity and changing character of the student population, and therefore there is a development of creativity.

As the bargaining that has to be done between teacher and student (so that teaching actions become validated) is highly emotional, it is possible that what happens during role making lies far beyond consciousness and rationality; it lies mainly in the will and effort to sustain a constant update of the perception of the other's reactions to one's actions, so that role support may be achieved. As students value relationship aspects more, and teachers tend to be more concentrated on task aspects, it is possible that a teacher's role may be built taking both actors as the "significant other", simultaneously, even though in a quite unstable equilibrium; both factors are correlated, in a way that requires a constant review of one's role construction, that is, a constant search for improvement and thus a creative approach to role making and to performance, which was confirmed during the interviews. What the investigation provided was data to sustain that the creative teacher, not only succeeds in taking his or her role out of the students' expectancies, but also considers the colleagues as a "significant other", and constructs the professional self out of these two identifications - the latter, which tells the individual how to conform to a prescribed role; and the former, which allows the individual to go beyond the prescribed role, and to be seen as creative. In a way, to go beyond the prescribed role is also a form of being a good professional, which some authors call "citizenship behaviour" (Organ, 1988; Konovsky & Organ, 1996), and by others who adapt this designation to the school context (Koh, Steers & Terborg, 1995; Rego & Sousa, 1999).

As to Kelly's personal construct theory, it brought a possible clarification that, in the case of a teacher, it is the anticipation of the other's reactions that leads him or her to try to understand the constructs of the students, and to speak in the "student's language", so that communication may take place between the two. Although maintaining the core construct stable, the effort to stay close to the student may lead the self-actualising teacher to change peripheral constructs, and to adapt them to the population at hand, in a way that may be seen sometimes as inconsistent with the expected behavioural framework. A teacher who tries to stay close to the students may have some doubts about how to do it, but not that it should be done; and probably fewer doubts about what should not be done. Nevertheless, as stated before, this type of role making does not exclude peers or superiors, as they tend to have other requirements which are not necessarily incompatible with students' requirements, depending on the situation. That is why creative teachers did not score different from students in what they value most, nor from other teachers, in what they consider to be important. The correspondence analysis to some of the interviews supported these findings, revealing that these teachers see themselves at an equilibrium between what is expected of them by they peers and superiors (task), and their necessity to stay close to ther students (relation).

Leadership theory and research, as a field of knowledge also concerned with creativity and effectiveness, has tried to define how creative and effective leadership may be achieved by describing the "ideal leader", or the "one best way" to be effective, using three main approaches - trait, behavioural and contingent - which were adapted to the teaching situation. This way, the trait approach to teaching may try to devise which personal characteristics make the teacher creative or effective in any situation, while concluding that certain traits, especially those connected with communication abilities (e.g. social presence, good judgement, verbal fluency, persuasive power, impression management, extroversion, dominance, self-confidence) increase the likelihood that a teacher will be perceived as creative, or as effective, but do not guarantee effectiveness or creativity (Mackinnon, 1978; Grasha, 1990; Vroom & Yetton, 1973; Bass, 1990).

The behavioural approach may be adapted to the use of teaching styles, and as in the findings of Ohio and Michigan universities, teachers' behaviours may be divided into two correlated dimensions: task-oriented and relationship-oriented behaviours, whose relative magnitude can be assessed by instruments like the one used in this research, which proved to correlate with a leadership theory derived instrument - the *Leader Behaviour Description Questionnaire* (LBDQ). According to the results provided, task aspects address behaviours that do not take the student as an active subject (e.g. class preparation, subject matter knowledge, giving examples and analogies, problem solving and decision making, cultural background, expertise), while relationship aspects are related with everything that considers the student as an active subject (e.g. class discussion, humor and play, visiting places interesting to the students, promoting team work, friendship, individual student knowledge).

The contingent approach, using the teacher's characteristics and behaviours according to the situation, brings about the need to break with the "ideal teacher" concept and its listings of ideal traits, behaviours or characteristics. According to this approach, it becomes important for the teacher to learn to detect differences between students, and between situations, and to act accordingly. The investigation showed the need for the teacher to be able to detect changes in the students, and to keep up to date with these changes and their requirements in terms of language, possibilities, values and culture.

Although the presentation of the listed models brought important points to this research, in terms of understanding the evolution of structural theories, and the separation between task and relationship aspects, it was inside the cognitive, social-perceptual models, linked to symbolic interactionism and role theory, that it was possible to find more elements about the processes analysed in the present research; leader recognition and teacher recognition may perhaps be explained using similar social-perceptual processes and categorisations. From the various theories that may fall into this categorisation, two of them are covered in the third chapter of the literature review, as they were considered inside the role theory approach and directly transferable to the teaching situation: Lord & Maher's implicit leadership theory, and Graen's vertical dyadic linkage theory.

Lord & Maher's theory may help us to understand the teaching situation by realising that creativity in teaching results from a social-perceptual process of being seen as an "creative" teacher by others, either because they recognise some particular characteristic of the teacher, as a person, or they infer it from events in which that person participates. Through a social information processing model, creative teaching perceptions can be explained by two qualitatively different processes: either teaching can be *recognised* from the qualities and behaviours revealed through normal, day-to-day interaction with others, or it can be *inferred* from the outcomes of salient events. In the teaching situation, a teacher may probably be recognised as creative according to the learning outcomes attributed to him or her, or through particular characteristics and behaviours revealed during normal interaction.

These theories allow us to expect some consistency over several organisational cultures of what kind of teacher behaviours may be considered creative in the teaching situation.

Bales' SYMLOG was of considerable importance in detecting shared implicit theories in teaching, as well as evaluating different perceptions of creative teaching, and characterising the typical creative teacher, who was seen as more directed to the relationship with the students than to task objectives; scores obtained in the validation study revealed that a typical creative teacher can be seen as an UP leader, meaning the teacher aimed at social success, encouraging group members to interact and co-operate without concentrating only on group tasks or competition; also that this type of subjects tend to address the group as a whole, to ask for information, instead of giving it, to play and relieve tension. The high score obtained in the "P" dimension, classifying this type of teacher as undeniably "positive; friendly", cleared up some doubts that we might have about linking creativity in teaching to communication and to relationship. Also, the fact the subjects attributed some "dominance" ("U" dimension) to this character, stressed the difficulty in viewing the typical creative teacher as a "facilitator", who supports students' creativity, or as an "innovator", who leads them into creativity.

Limitations of the Research Instrument and Procedures

The main limitation of this research is also one of its central findings: is it possible to state, without doubt, that the relationship factor, measured by the questionnaire, means creative teaching, while the task factor means effective teaching?

Throughout this text, much has been said to support an affirmative answer to this question, and as the literature review was developed at the same time as the instrument was built and administered to various samples, the deductions made proceeded carefully between theoretical and field research, so that congruence would become possible. It must be recalled that, besides the difficulties pertaining to the literature, mentioned in the preceding section, the instrument was based totally on people's descriptions of creativity in teaching, without any interference of the theoretical descriptions, as if it there were no previous knowledge about the subject. Nevertheless, all possible checks with the literature were made in order to prevent the instrument from lacking important aspects that should be assessed.

From its initial version of 112 constructs (taken out of almost one thousand), to the present 16, there is a long distance, and necessarily something must have been lost at the expense of simplicity and accuracy. From the initial attempts to find a structure within the instrument, in which the constructs clustered together in many and not always understandable ways, a two-factor structure emerged almost by accident, and even so, it was highly dependent on the sample of subjects that were under assessment. To our knowledge, it was the first time that an instrument such as this one was built and used, taking into consideration that, normally, each construct or item reports directly to one measurement scale, and not to four of them, as in this questionnaire. This type of instrument makes factor analyses much more complex, as it is almost impossible for the scores obtained in each one of the four elements to cluster together the same way; even though exploratory factor analyses became more and more congruent as the instrument's construction progressed, only confirmatory factor analyses provided the necessary means to support the two-factor structure, with the same distribution of factors across the elements, and within each of the samples representing different populations. Nevertheless, confirmatory factor analysis does not provide a completely objective index, and so it remains within a certain range of subjectivity.

It is important to indicate that if items 1 ("The students receive high marks") and 16 ("Identifies the students with friendly nicknames"), in the relationship factor, and items 4 ("Unable to teach a lesson he or she has not prepared") and 12 ("Limits himself or herself to reality"), in the task factor, were discarded, the exploratory factor analyses would become clear, irrespective of the sample under investigation. This way, a simple 12-item instrument would be enough to detect the predicted differences and similarities. Nevertheless, although augmenting reliability, some of the information would be lost, and therefore, the 16-item version still prevails as the suggested instrument for future research.

Even if the two-factor structure can be accepted without constraints, the fact that the factors were not independent, but weakly correlated (.23 to .31, $p<.01$, depending on the element considered), made its interpretation more difficult, as it is not easy to classify some of the constructs clearly as task or as relationship. Perhaps a more accurate designation could be teacher-centred, for task aspects, and student-centred, for relationship ones, but then this could give the idea that some of the task aspects were not aimed at the students, which is not true. In fact, during the validation study, both factors correlated in equal terms with Alencar's instrument, as well as with the SYMLOG, proving that the typical creative teacher is always student-centred, even though either more task or more relationship-oriented.

The use of "task" designation, was borrowed from leadership theory, especially from the Leadership Behaviour Description Questionnaire, with which the instrument proved to converge, in a similar factor structure. Its analogy with "effectiveness" is perhaps rather forced because, in leadership theory, there is more in effectiveness than just instrumental tasks, but it was the clearest way to clarify a construct that had little to do with the communication that is developed with the students, taking them as an active entity (e.g. "Distant from the students" belongs to the task factor, because it is a teacher initiative that does not depend on the students, while "Creates a friendly relationship with the students" implies that the students also show friendliness, and so it belongs to the relationship factor). Nevertheless, a more important aspect that may justify the designation of this factor as "effectiveness", is that teachers do not recognise themselves as creative, but only as effective, because they are aiming at improvement, not novelty. Creativity, when seen as a self-attributed phenomenon, takes the meaning of effectiveness, as previously discussed. A creative teacher is just a sort of a "high-high" teacher, to use a leadership designation that characterises a leader that is high in task, as well as in relationship orientation. The added difference is that while the task dimension is derived from the creative teacher's peers, the relationship one is derived from the students.

The use of the designation "Relationship" followed the same rationale as in leadership theory, even though it may also be called "student-centred" (but then, some confusion may arise with the task factor, which may also be student-centred, as explained). The analogy with "creativity" is clearer than in the previous case, given the supporting literature that sees creativity as a communication process, and the fact that the hetero-attribution process of creativity falls in this direction; students may perceive creativity in a teacher whose attempts to be effective are successful, meaning that the teacher has succeeded in establishing a communication that results in the perception of creativity. As to innovation, meaning some idea or product perceived as novel and valuable, although also depending on the teacher's performances, it may be difficult to separate it from creativity as communication, because what is created out of lecturers' and students' interaction (e.g. articles, books, plays, films), can never be attributed to just one of them, so innovation in teaching is always a product that results from an interactive process.

Another limitation of the research is connected with the reliability and validity of the instrument, in direct relation with the procedure that was followed.

Even though the text presents extensive data as to the instrument's reliability, both in its temporal stability, and in its internal consistency, more needs to be done as to its temporal stability, given the fact that we know that people, especially students, change their opinions with time, and this may affect the results. As its internal consistency did not present strong values, it was decided not to perform another series of test-retest procedures, but the ones that were done during the elaboration of the instrument, as this would not bring any significant support to the analyses of the results. In fact, given the characteristics of the instrument, related to construct and criterion-related validity (e.g. ability to discriminate in accordance with the independent variables and the elements constructed, convergence in factor analysis, support of the propositions defined), and that this study was not a longitudinal one, a further verification of its time stability was not considered necessary. Also, as it may be questionable to increase the number of items, or to join the scores given to more than one element, when calculating the internal consistency index, such procedures will not be considered.

As mentioned during the chapter where the procedure was described, the data was not all collected at the same time of the year, in every School. In fact, data pertaining to the pilot study (at the ESCS and the ESEL) was collected one year before the rest, which may bring some bias into the comparison, especially in the ESCS, where changes have been made, and the number of students and faculty is about one third greater than at the time the data were collected. Meanwhile, the fourth year did not exist in the majority of the Schools when the data was collected, so these students were not included in the investigation, making it incomplete, in present terms. The data was also collected at different times, during the school-year, which may also have brought some bias, as students are likely to change their opinions about teaching, as the year progresses. Nevertheless, as few differences were found between years (except at the ESCS and the ISCAL), this fact may not be important enough to influence the results.

The way data was collected among students, using samples of opportunity in almost every School, instead of any other random or systematic sampling method, causes problems in making inferences when comparing groups of students within each School. As the aim of this research was not to draw inferences according to all possible combinations of the defined predictors, but only between teachers and students and, if possible, between Schools, that objective was achieved, even though at the Dance School the sample of lecturers was too small, and at the ISEL the sample of students was not large enough to draw conclusions as to the variables "Year" and "Course". A short questionnaire, such as the one used, represents a compromise between quantity and quality, as it would never have been possible to collect data from this many subjects if the instrument took longer to fill in, or if there were more than just one questionnaire to answer. Even so, the percentage of questionnaires returned by the faculty was low (27%) and, as previously mentioned, it is not know how the non-responding lecturers would score the instrument; there can only be speculation about the fact that these lecturers belong to the "uncreative majority", and so their scores would tend to make the differences towards students even greater.

The fact that not all possible interviews (n=62) were done, nor all the possible observations, reduces the accuracy of the qualitative data included. Nevertheless, while it makes the possible descriptions less rich, it does not affect the findings.

Because the data was collected only at the Lisbon Polytechnic Institute (with an extra sample from two nursing Schools, during the validation study), this prevents the findings from being extrapolated to other geographical areas, universities, or countries. Nevertheless, given the significance of the differences found between students and faculty, it is likely that its population validity (ability to generalise to other groups) would be high, if tested elsewhere.

In spite of the limitations that were described, it must be recalled that the validation study provided substantial data as to the construct validity (the score has meaning of interest, related to a theoretical construct) of the instrument, when compared with similar instruments (convergent validity). Besides these findings, it is important to recall that the factor analyses (exploratory and confirmatory) made and, especially, the ability to detect differences between groups that were expected to result in different scores, also support the construct validity of the instrument. It has also been demonstrated to have criterion-related validity (how accurately criterion performance can be predicted from scores on the test), as the lecturers considered creative scored differently from the other subjects, and their scores were confirmed in the analyses made of their discourse.

Concluding Comments

Before concluding, it is important to stress the contribution of this research to a deeper knowledge of the polytechnic system of higher education in Portugal, since - to our knowledge - it is the first dissertation to be made in this area. Due to its diversity and almost unique characteristics, the Lisbon Polytechnic Institute (IPL) provides important opportunities to look at such different realities as those to be found in the arts and sciences.

The opportunity to meet, interview, analyse the discourse, and attend the classes of such interesting subjects as those selected as examples of creative teaching, provided the final touch to this research: the possibility to understand people's concepts of creativity and creative teaching, as seen by those who are its living examples. Up to a point, these subjects provided the necessary links between theory and reality, between scientific constructs and people's concepts, adding some more definitions and descriptions of creative teaching.

Through them it was possible to confirm that teaching creatively is seen by its agents as the search for doing things better (efectiveness), while keeping the students as the main target. And that if the communication process is successful, that attempt is perceived by the students as novel and valuable, in helping them to develop and to be ready to face new challenges.

That is why the teacher's perspective of effectiveness transforms itself into creativity when the student is considered as an active player, and as the raison d'être of the search for that effectiveness.

The Typical Creative Teacher

From the interviews, it was possible to conclude that, at the polytechnic, creative teachers:

"Are 'workaholics', with a teaching experience of more than ten years, unique and different from each other in such a way that it is difficult to find patterns, but in the fact that all love what they do, and all of them love their students.

They do not recognise themselves as creative, and tend to attribute that assessment to external factors (e.g. nature of the subject matter taught, reputation as a professional outside the educational environment), or to the kind of relationship that they maintain with their students. They tend to see themselves as "good teachers" and "actors on stage", or as "negotiators" with their students, frequently available outside class, flexible as to students' deviant behaviours (e.g. late arrivals), close (friendly) and distant (not a 'comrade') at the same time; knowing their names, participating in their initiatives and standing up for them when needed. Popular among students and respected (and probably envied) by their peers, they sometimes fear that being too nice can also be a bad thing for the students, preventing them from giving appropriate feedback, or leading them to fail later, when they will not have the extra support that they get from these teachers.

They prefer not to go in for too detailed a preparation of their classes, leaving something to be constructed with the students, as a sort of 'hazardous class adventure', so that it may become a surprise to themselves, as well as to their students. They hardly repeat a class, exercise, or semester exactly in the same way.

Good professionals in their own fields, they often carry out both activities (work and teaching) simultaneously, especially in the arts, accountancy and engineering fields, as this gives them the possibility of becoming experts in making analogies between academic and real life. Preferring to demystify science in its application to real-life problems, emphasising communication instead of content, and alerting the students to everything that surrounds them, in their classes they try to create a climate favourable to the sharing of experiences.

Some of them may be more 'task-oriented', corresponding to the 'actor on stage', or 'seducer' type; others may be more 'relationship-oriented', corresponding to the 'supportive' approach, aimed at establishing close relationships and providing social support. The former type may also be designated as 'masculine', or 'transformational'; and the latter 'feminine', or 'facilitating'.

As to their ideal of perfection, they feel they are in equilibrium with their students, and that they must change as the students change, and all they wish is to have more time for themselves and for their students, and need less time to get to know them well.

And last, but not least, they tend to be subject-matter experts, with a constant worry for keeping themselves up-to-date."

Definitions of creative teaching were chosen as examples of implicit theories of creative teaching:

The innovative, task-oriented teacher:

"(...) to be half way to being a good teacher"

"(...) a communicator first"

"(...) someone who leaves his or her mark"

"(...) a seducer, who 'inflames', 'infects', turns the students into subject matter 'addicts"

"(...) is to be able to capture the cultural evolution of the students, to feel the communities' objectives in education, to invent the future and see what kind of knowledge will be necessary then"

"(...) is to create something new with the students"

Others corresponded to the "facilitator" type of teacher:

"(...) something that comes from the humility of creating our practice out of our self-assessment, presenting a model that does not have to be perfect (i.e. is not necessarily a role-model) and that must not try to impose itself"

"(...) is to live between light and darkness; to have an idea and not to have the image of that idea"

"(...) to try to understand whether what each student takes out of school has to do with his or her wishes"

"(...) being ethical (relationship), before being aesthetic (task)"

"(...) to be able to discover what the student has to say; what he or she is able to do; how his or her expressiveness reveals itself"

Finally, the typical uncreative teacher seems to be:

"Just someone who delivers the subject matter always the same way, not taking the students' reactions into consideration; who leads them to concentrate on facts and concepts, instead of questioning themselves and the subject matter."

"(...) a predictable person."

The correspondence analyses made of their discourse provided a clear picture of how these subjects see themselves in the whole spectrum of teaching. To them creativity must be seen as an isolated aspect of teaching, and as a kind of target, that neither the teacher nor the students should pursue for its own sake: moving the teacher towards creativity might imply his or her separation from the students and from teaching, while moving to the task would divert the teacher from creativity, connecting him or her with the task aspect of teaching only. It is possible that the discourse of a less creative teacher would be represented in a perceptual map where "task" and "teacher" appear close together; the discourse of a student, thinking as if a teacher, would probably be represented by placing "creativity" in the same cluster as "teacher", "relation", and "student".

Final Note

Every objective defined in Chapter Four, Part I, has been attained in this dissertation, and we think that it has proved to be an important contribution to the understanding of the ways in that students and faculty see the role of a teacher in higher education, and to evaluate the importance of creativity in teaching. It has provided enough evidence to support the finding that the importance of creativity, and of creative teaching, may change according to the role of the observer, and that only a small percentage of professionals arrive at a construction of the role of teacher that is considered creative by the students. This reality may perhaps change, if we succeed in bringing into the educational system an additional understanding of the construction of the role of teacher, in such a way that it favours the process of communication with the students.

Besides bringing in contributions that can be used in leadership and in teacher training, and in the evaluation of excellence in higher education teaching, the dissertation has introduced refinements in creativity theory that may help to clarify the separation between theoretical constructs and lay concepts of the term.

Together with a possible future investigation into ways that teachers and students see creativity and effectiveness in the students, it may provide a comprehensive framework to explain both roles. Also, extending this study to other populations, especially the university, may bring to it the population validity that is now still restricted to the IPL.

The author recognises that many assumptions were made before the discussion chapter, when it is to be expected that the literature review should limit itself to what is already established. This was due to the necessity of providing a clear framework from which it could be possible to build up the research, and not by a mere wish to become original. In fact, it was not possible to proceed to a presentation of creative teaching without clarifying the meaning of creativity, and the result was the separation of self-attributed from hetero-attributed creativity; it was not possible to develop an analogy with the research on leadership, without first separating creativity from effectiveness in teaching, so that these constructs could be linked with task and relationship aspects of leadership; and it was not possible to establish a connection between lay concepts of creativity and creative teaching, and theoretical constructs, without using empirical procedures, totally free from theoretical bias, based on Kelly's theory and procedures. Nevertheless, these clarifications appeared almost always as a surprise, as there was no previous intention that the results should turn out as they did.

The development of this research turned out to produce what may be regarded as innovations. It was never the intention of the author to be considered an innovator, but just to present facts and theory in such a way that they could be seen as consistent with a defined purpose, and to bring some extra understanding of the problems surrounding higher education. Its major findings may also be regarded as its major weaknesses, depending on the point of view of the observer. Therefore, it will be for those who have to evaluate it to decide whether this work is more or less valuable as an aid to those who wish to help their students to become better persons and better professionals, and to them this work is dedicated.

As to Paul Torrance's (1995) observation, which opened this dissertation *"(...) Great teachers will have to live with the fate of being fired, discredited, isolated or their funds being withdrawn(...)"*, and to the questions that followed, we hope that this research can be used as a contribution to changing that fate in the future.

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APPENDIX A - CONSTRUCT ELICITING INSTRUCTIONS

GRADE DE KELLY
MODELO PARA ALUNOS

1. A finalidade deste exercício é a de obter descrições de comportamentos que sejam opostos, ou pelo menos diferentes, sob o ponto de vista da criatividade. Irão ser pedidos 3 conjuntos de descrições: 1 sobre professores, outro sobre seus (suas) colegas, e outro sobre o modo como você acha que os professores veêm os (as) seus (suas) colegas.

2. Dobre uma das folhas brancas 5 vezes e recorte pelas dobras, obtendo 32 rectangulos. Retire 8, numere-os, e escreva um nome em cada um deles, de acordo com o seguinte critério: 3 professores seus (escola primária, liceu, universidade, etc.) que considere serem (terem sido) particularmente criativos, 3 outros que ache nada criativos, 2 outros que ache serem criativos de vez em quando. Retire um 9º papel e escreva: "Como eu acho que seria (sou) como professor (a)."

3. Junte dois que habitualmente faziam (fazem) algo de modo semelhante, e um terceiro que procedesse de modo oposto ou, pelo menos, muito diferente. Descreva esses comportamentos de forma sucinta, conforme o exemplo. Caso tenha dificuldade em trabalhar com tríades, utilize apenas pares de opostos.

Exemplo para professores:

* Davam as aulas conversando com os alunos ____________________ * Limitava-se a ler o livro durante as aulas

4. Em outros 8 rectangulos escreva nomes de outros (outras) tantos colegas de escola (actuais ou antigos), de acordo com o seguinte critério: 3 que considere particularmente criativos, 3 nada criativos, 2 por vezes criativos. No 9º papel escreva "EU". Execute o restante conforme descrito em 3.

Exemplo para alunos:

* Gostam de fazer o que os outros ainda não fizeram ____________________ * As suas ideias não passam de cópias

5. Por último execute o mesmo exercício considerando o modo como acha que os professores veêm o comportamento de 8 colegas seus (3 julgados criativos pelos professores, 3 não criativos, e 2 por vezes criativos) e o seu próprio.

Exemplo para alunos, vistos sob o ponto de vista dos professores:

* Agressivos para o professor, mesmo sem intenção. ____________________ * Simpático para o professor

Tente, pelo menos, descrever 6 pares de comportamentos opostos, para cada uma das 3 descrições pedidas. Obrigado!

GRADE DE KELLY
MODELO PARA PROFESSORES

1. A finalidade deste exercício é a de obter descrições de comportamentos que sejam opostos, ou pelo menos diferentes, sob o ponto de vista da criatividade. Irão ser pedidos 3 conjuntos de descrições: 1 sobre alunos (as) seus (suas), outro sobre seus (suas) colègas, e outro sobre o modo como você acha que os alunos veêm os seus colegas.

2. Dos rectangulos de papel branco retire 8, numere-os, e escreva um nome em cada um deles, de acordo com o seguinte critério: 3 alunos seus (actuais ou antigos) que considere serem (terem sido) particularmente criativos, 3 outros que ache nada criativos, 2 outros que ache serem criativos de vez em quando. Retire um 9º papel e escreva: "Como eu acho que fui (sou) como aluno (a)."

3. Junte dois que habitualmente faziam (fazem) algo de modo semelhante, e um terceiro que procedesse (procede) de modo oposto ou, pelo menos, muito diferente. Descreva esses comportamentos de forma sucinta, conforme o exemplo. Caso tenha dificuldade em trabalhar com tríades, utilize apenas pares de opostos.

Exemplo para alunos:

* Emitem opiniões sobre todos os assuntos	_______________	* Raramente coloca questões

4. Em outros 8 rectangulos escreva nomes de outros (outras) tantos colegas professores (actuais ou antigos), de acordo com o seguinte critério: 3 que considere serem (terem sido) particularmente criativos, 3 nada criativos, 2 por vezes criativos. No 9º papel escreva "EU". Execute o restante conforme descrito em 3.

Exemplo para professores:

* Leêm e ditam a matéria	_______________	* Expõe a matéria conversando

5. Por último execute o mesmo exercício considerando o modo como acha que os alunos veêm comportamentos criativos de 8 colegas seus (3 julgados criativos pelos alunos, 3 não criativos, e 2 por vezes criativos) e o seu próprio.

Exemplo para professores, sob o ponto de vista dos alunos:

* Interessados pelos alunos	_______________	* Sem interesse pelo aluno individual

Tente, pelo menos, descrever 6 pares de comportamentos opostos, para cada uma das 3 descrições pedidas. Obrigado!

APPENDIX B - FIRST DRAFT (56-ITEM)

GRADE DE KELLY - F1 [aluno/professor; professor/professor; professor/(aluno)professor]

Este questionário faz parte de uma investigação que visa compreender melhor o modo como professores e alunos, do ensino superior, se vêem reciprocamente, sob o ponto de vista da criatividade. O género masculino, aqui utilizado por vantagens de forma, aplica-se para os dois sexos.

Nas 2 primeiras colunas, pede-se-lhe para recordar **DUAS pessoas reais**: "Um professor criativo" e "Um professor nada criativo", que tenham sido, ou sejam seus professores ou colegas. Pede-se o que "é", ou "foi", e não o que "devia ser".

Nas 2 colunas seguintes, nas figuras "Eu, como professor", e "Como os meus alunos me veêm", caso não seja professor, ou nunca tivesse sido, pede-se-lhe para se imaginar nesse papel.

Agradecendo desde já a sua colaboração, chamamos a atenção de que a escala é como segue:

Totalmente de acordo com A X|_|_|_|_	Mais de acordo com A |X|_|_|_	Entre A e B, ou "Não aplicável" _|_|X|_|_	Mais de acordo com B _|_|_|X|_	Totalmente de acordo com B _|_|_|_|X

CONSTRUCTO **A**	Um professor criativo	Um professor nada criativo	Como acho que os meus alunos me veêm	Eu, como professor	CONSTRUCTO **B**
1 Rígido a dar as aulas					1 Descontraído a dar as aulas
1a Demasiado linear a seguir o programa					1a Vagueia pelo incomum e pelo que lhe dá prazer no momento
1c O ensino é apenas fonte de rendimento, e os alunos estatuas					1c Gosto por ensinar e aprender com os alunos
1d Arrogante a dar as aulas					1d Dá aulas com prazer
1e Limita-se a dar o programa					1e Conta histórias
1f Lê a matéria					1f Cria analogias para conseguir explicar
1h Chama a atenção com piadas e jogos					1h "Dispara" a matéria
1i Dá conselhos úteis					1i Só fala da teoria
1l Faz com que os alunos se desliguem da realidade					1l Dá aulas aborrecidas
1m Sabe do que fala					1m Contradiz-se
1n A matéria é de pouca ajuda para o futuro do aluno					1n A matéria serve para ensinar o aluno a resolver problemas
1o Lê o que está no livro					1p Promove o trabalho em grupo
1r Vê o que tem a ver e nada mais					1r Muito observador do mundo que o rodeia
1s Discute com os alunos temas controversos					1s Reprime os alunos
1t Faz viajar os alunos por outros mundos					1t Limita-se à realidade
1u Cria um espaço de recreio onde tudo se aprende					1u Impõe-se de tal forma que nunca há dúvidas
1v Esquematiza a matéria, tornando-a mais perceptível					1v Não utiliza esquemas, apenas textos
1x Não gosta de trabalhos originais ou que não sigam as suas regras					1x Incentiva a realização de trabalhos diferentes dos feitos anteriormente
1y Não consegue dar uma aula que não preparou					1y Tudo é importante na vida
1z Trata assuntos fora da disciplina					1z Limita-se ao programa
1aa Dá exemplos práticos					1aa Nunca dá exemplos práticos
1ac Rege-se pelo que lhe é imposto, nada acrescentando de seu					1ac Trata assuntos rotineiros com poesia

1ad Cultiva o gosto pela matéria com actividades cativantes					5ad Debita a matéria de forma insegura
5ae Nunca faz exercícios práticos					1ae Faz exercícios práticos
5af Lógico no discurso					1af Incoerente nos raciocínios
1ag Dá a solução dos exercícios no fim da aula					1ag Os alunos têm que descobrir por si próprios a solução dos exercícios
1ah Não foge do objectivo da lição					1ah Perde-se com assuntos estranhos ao objectivo da lição
1ai Cumpre o programa, transmitindo muitos conhecimentos					1ai Nunca chega ao fim do programa, transmitindo poucos conhecimentos
1aj As notas dos alunos são altas					1aj As notas dos alunos são baixas
2 Relação afável e divertida extra-aula					6 Distante dos alunos
2a Ridiculariza os alunos quando erram					2a Ajuda os alunos
2b Relação fria e distante com os alunos					2b Cria uma relação de amizade com os alunos
2c Preocupa-se com problemas pessoais dos alunos					2c Humilha os alunos
2e Leva os alunos a visitar locais					2e Nunca leva os alunos fora das aulas
2f Não gosta dos alunos que fazem perguntas difíceis					2f Gosta dos alunos que fazem perguntas difíceis
2g Aceita todos os alunos, mesmo os que chegam atrasados					2g Põe os alunos na rua sem motivo aparente
2h Ríspido e com desprezo para com os alunos					2h Identifica os alunos com alcunhas carinhosas
2i Ameaça					2i Cria recompensas, motivando
2j Diferenciação aluno-professor bem vincada					2j Preocupa-se em conhecer mais intimamente os alunos
2l Dá aulas de "ditado"					2l Põe os alunos a "trabalhar"
2m Sente-se ameaçado quando questionado					2m Gosta que o questionem
2n Dá apoio aos alunos mais fracos					2n Só apoia os melhores alunos
2o Os alunos estão à vontade nas aulas, mantendo o respeito					2o Indisciplina total nas aulas
3a Notas dadas por preferências pessoais					3a Notas justas e objectivas
3b Não explica o que pretende					3b Define claramente o que pretende
3c Exagero no pedido de trabalhos					3c Trabalhos definidos atempadamente
3d Imune à "graxa"					3d Denota preferências
3e Não se limita aos testes como forma de avaliação					3e Faz a avaliação apenas mediante testes
3f Os testes são práticos e objectivos, coincidentes com a matéria dada					3f Os testes requerem cultura geral e nem sempre são coincidentes com as aulas
4a Passa a aula a andar de um lado para o outro					4a Senta-se em cima do tampo da mesa
4b Veste-se de forma original					4b Convencional no vestir
4c Falta muito às aulas					4c Pontual e assíduo

4d Impõe a secretária como barreira entre alunos e professor	_⊥_⊥_⊥_⊥_	_⊥_⊥_⊥_⊥_	_⊥_⊥_⊥_⊥_	_⊥_⊥_⊥_⊥_	4d Raramente sentado à secretária
4e Não se evidencia na sua forma de apresentação exterior	_⊥_⊥_⊥_⊥_	_⊥_⊥_⊥_⊥_	_⊥_⊥_⊥_⊥_	_⊥_⊥_⊥_⊥_	4e Forma de apresentação exterior muito marcante, nas aulas
4f Não tem sentido de humor	_⊥_⊥_⊥_⊥_	_⊥_⊥_⊥_⊥_	_⊥_⊥_⊥_⊥_	_⊥_⊥_⊥_⊥_	4f Tem sentido de humor
4g Voz monotona	_⊥_⊥_⊥_⊥_	_⊥_⊥_⊥_⊥_	_⊥_⊥_⊥_⊥_	_⊥_⊥_⊥_⊥_	4g Varia o timbre de voz

OBRIGADO PELA SUA COLABORAÇÃO!

GRADE DE KELLY - F2 [professor/aluno; aluno/aluno; aluno/(professor)aluno]

Este questionário faz parte de uma investigação que visa compreender melhor o modo como professores e alunos, do ensino superior, se veêm reciprocamente, sob o ponto de vista da criatividade. O género masculino, aqui utilizado por vantagens de forma, aplica-se para os dois sexos.

Nas 2 primeiras colunas, pede-se-lhe para recordar **DUAS pessoas reais**: "aluno criativo" e "aluno nada criativo", que tenham sido, ou sejam seus alunos ou colegas. Pede-se o que "é", ou "foi", e não o que "devia ser".

Nas 2 colunas seguintes, nas figuras "Eu, como aluno", e "Como eu acho que os meus professores me veêm (ou viam)", caso não seja aluno, pede-se-lhe para se tentar recordar quando era.

Agradecendo desde já a sua colaboração, chamamos a atenção de que a escala é como segue:

Totalmente de acordo com A X|_|_|_|_	Mais de acordo com A _|X|_|_|_	Entre A e B, ou "Não aplicavel" _|_|X|_|_	Mais de acordo com B _|_|_|X|_	Totalmente de acordo com B _|_|_|_|X

CONSTRUCTO A	Um aluno criativo	Um aluno nada criativo	Como eu acho que os meus professores me veêm (viam)	Eu, como aluno	CONSTRUCTO B
1 Possui ideias originais	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	1 Limita-se a aceitar as ideais dos outros
1a Consegue sempre ver um outro lado das coisas	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	1a Apatico em relação ao que o rodeia
1b Tem ideias espontâneas	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	1b Revela pouco interesse
1c Criativo por natureza	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	1c Finge ser criativo
1e É totalmente imprevisivel	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	1e Muito previsivel
1f A falar e inesperado	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	1f Pesa muito bem os prós e os contras
1g Rege-se por estereotipos	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	1g Tem ideias excelentes
1h Escreve de modo muito "certinho"	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	1h Divaga acima de tudo
1j Distingue-se dos outros	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	1j Inesperado, mas inseguro
1l Agarra-se demasiado ao	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	1l Gosta de elaborar o seu
trabalho dos outros	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	proprio trabalho
1m Capaz de pôr as ideias em pratica, sem medo	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	1m Bastante influenciado pelo que os outros possam pensar
1n Com bastante espirito de iniciativa	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	1n Sem vontade de iniciar seja o que fôr, comodista
1o Tem poucas certezas, critico	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	1o Tem medo de tudo o que não está bem delimitado
1p Faz associações entre materias de varias disciplinas	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	1p Cinge-se apenas à materia que está a ser dada
2 Faz rir os outros	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	2 Mantem um ar rigido
2a gozo pleno da vida	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	2a Sem vida interior
2b Extrovertido e brincalhão	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	2b Fechado e individualista
2c Predisposto à brincadeira sem preconceitos	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	2c Serio e com valores muito tradicionais
2d Tudo o que pensa acaba em banda desenhada	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	2d Não tem perspectivas muito diferentes do dia-a-dia
2e Organizado em tudo	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	2e Desorganizado em tudo
2f Leva a vida a brincar	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	2f Leva a vida como uma batalha a ganhar
2g Demasiado "picuinhas" com o que se lhe diz	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	2g Leva as coisas na brincadeira
2h Despreocupado	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	2h Preocupado em excesso
3 Não gosta de ser pressionado e comandado	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	3 Age de acordo com a regras impostas
3a É contestatário	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	3a É passivo

3c Gosta de arriscar	_____	_____	_____	_____	3c Segue sempre o mesmo padrão
3d "Compra" os professores	_____	_____	_____	_____	3d Bem sucedido na sua relação natural com os professores
3e Atraente	_____	_____	_____	_____	3e Nada atraente
3f Participa nas aulas com perguntas pertinentes e algumas piadas	_____	_____	_____	_____	3f Quando participa é para debitar a matéria que já decorou
3g Participa em muitas actividades extra-curriculares	_____	_____	_____	_____	3g Limita-se a sair das aulas e ir para casa
3j Questiona sempre o que aprende	_____	_____	_____	_____	3j Escreve tudo no caderno, incluindo os erros do professor
3l Gosta de comandar as situações	_____	_____	_____	_____	3l Tenta passar despercebido e fugir às realidades
3m Faz outras coisas para além de estudar	_____	_____	_____	_____	3m Vive para e a estudar
3n Finge que não liga ao que é dito nas aulas	_____	_____	_____	_____	3n Fica no fim da aula a dar "graxa" ao professor
3o Aldraba com facilidade o sistema	_____	_____	_____	_____	3o Serio e frontal
3p Gosta de participar	_____	_____	_____	_____	3p Nunca abre a boca
3q Expõe os seus pontos de vista, por muito que difiram do professor	_____	_____	_____	_____	3q Concorda sempre com o professor
3r Muito inquieto	_____	_____	_____	_____	3r Demasiado calmo
3s Mal educado	_____	_____	_____	_____	3s Bem educado
3t Simpatico para o professor	_____	_____	_____	_____	3t Agressivo para o professor, mesmo sem intenção
3u Desestabilizador	_____	_____	_____	_____	3u Bem comportado
3v Carismatico, funciona como idolo	_____	_____	_____	_____	3v Timido
3z Sempre a contradizer o professor	_____	_____	_____	_____	3z Não levanta problemas
3aa Fala de coisas completamente diferentes do tema	_____	_____	_____	_____	3aa Cinge-se aos factos da aula
3ad Prejudica as aulas	_____	_____	_____	_____	3ad Colabora com os professores
3ae Sempre atento	_____	_____	_____	_____	3ae Por vezes dorme nas aulas
3af Quer sempre fazer tudo	_____	_____	_____	_____	3af Procura nunca fazer nada
4 Campo cultural vasto e actualizado	_____	_____	_____	_____	4 Não tem assunto de conversa
4a Gosta de tudo o que é arte	_____	_____	_____	_____	4a Não conhece nada sobre arte
4b Muito jeito para o desenho	_____	_____	_____	_____	4b Dificuldades na expressão plastica
4c É rapaz	_____	_____	_____	_____	4c É rapariga
4d Faz redacções imaginativas	_____	_____	_____	_____	4d Limita-se à realidade circundante
4e Interessa-se por aprender mais do que a matéria	_____	_____	_____	_____	4e Apenas quer saber a matéria
4f Revela interesses extra-escolares	_____	_____	_____	_____	4f Só pensa em estudar
4g Muito pouco assiduo	_____	_____	_____	_____	4g É raro faltar às aulas
4h Muito distraido nas aulas	_____	_____	_____	_____	4h Com muita atenção
4i Não participa nas aulas	_____	_____	_____	_____	4i Assiduo e participativo
4j Muito metediço e inoportuno	_____	_____	_____	_____	4j Adulto, responsável
4l Esta sempre a falar	_____	_____	_____	_____	4l Esta sempre calado

5 Percebe tudo, mesmo para além do que é dito					5 sabe apenas o que aprende, mas nem sempre
5a Adora estudar sem "marrar"					5a Só "marra"
5b Bom aluno					5b Aluno com dificuldades
5c Tem cabelo comprido e louro					5c Moreno, com cabelos escuros
5d Não tem jeito para representar					5d Representa muito bem
5e Tenta sintetizar a matéria de um modo pessoal					5e Decora e transcreve, para os exames, tudo o que tem no caderno
5f Não estuda e tenta ser o mais criativo possível nos exames					5f Se não se lembra de uma palavra do discurso, bloqueia
5g Simplicidade de processos na forma como encara os problemas					3g Entra em pânico com facilidade
5h Desestabilizador do sistema, humorista					5h Muito participativo, sempre a seguir as regras
5i Mais esperto do que inteligente					5i Inteligente, mas muito pouco esperto
5j Gosta de aprender					5j Aprende para passar
5l Grande capacidade crítica e de apreensão					5l Pouca capacidade de apreensão
5m Muito estudioso					5m Perspicaz
5n Inteligente					5n Pouco inteligente
5o Está sempre na "lua", mas tem boas notas					5o As boas notas são resultado da atenção nas aulas
5p Não percebe nada da matéria					5p Percebe perfeitamente a matéria
5q Faz óptimos trabalhos					5q Faz trabalhos maçudos
5r Propõe trabalhos fora dos planeados					5r Quer sempre "escapar" aos trabalhos
6 Expressa-se com facilidade					6 Muito atado
6a Eloquente, com discurso claro e sem constrangimentos					6a "Mata" a conversa com discursos banais e provocatórios
6b Conta experiências próprias, por analogia com a matéria dada					6b Sente-se intimidado se tem de revelar qualquer coisa da sua vida
7 Relaciona-se com toda a gente					7 Invejoso
7a Vive a vida de modo diferente					7a Preocupa-se demasiado
7b Vive várias coisas ao mesmo tempo					7b Só um objectivo de cada vez
7c Estabelece muitas amizades					7c É um "trombudo"
7d Fiel					7d Traidor
7e Ajuda os colegas o máximo que pode					7e Nega o conhecimento que tem da informação
7f Foge às responsabilidades, arrogante					7f Sempre pronto a ajudar, simpático e amigo
7g Sempre bem disposto e pronto para a aventura					7h Afasta-se de tudo e de todos
7h Introvertido sem muita conversa					7i Extrovertido, comunica com todos

APPENDIX C - SECOND DRAFT (40-ITEM)

KELLY'S GRID - Teacher version (2nd)

ESTABLISHMENT__________________ ACADEMIC BACKGROUND__________________
SUBJECT(s) TAUGHT_______________________ EXPERIENCE (years) ____________

This questionnaire is part of a research project which aims at understanding the way teachers and students, in higher education, see the teacher's role, as far as creative teaching is concerned.

Whenever the masculine gender is used, either gender is intended.

Grateful for your co-operation, we ask you to score each construct horizontally, filling in all four columns of each pair of constructs, before proceeding to the next pair.

The scale is as follows:

Strongly agree with A X|_|_|_|_	Agree more with A _|X|_|_|_	Either A or B, or "Not applicable" _|_|X|_|_	Agree more with B _|_|_|X|_	Strongly agree with B _|_|_|_|X

CONSTRUCT A	Creative teacher	Non creative teacher	As I think I am, as a teacher	As I would like to be, as a teacher	CONSTRUCT B
1 Follows the programme in too linear a way	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	1 Wanders through the uncommon and what gives him pleasure at the moment
2 Teaching is only a source of income, and the students considered as dummies	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	2 Enjoys teaching and learning with the students
3 Reads out the subject matter	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	3 Creates analogies to explain the subject matter
4 Attracts attention with jokes and games	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	4 "Rattles out" the subject matter
5 Takes students away from reality	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	5 Gives boring lessons
6 Knows what he is talking about	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	6 Contradicts himself
7 Stays within the lesson objective	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	7 Loses himself with subjects outside the lesson objective
8 Issues a lot of facts and concepts	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	8 Issues few facts and concepts
9 The students receive high marks	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	9 The students receive low marks
10 The subject matter is of little help to the student's future	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	10 The subject matter helps students to solve problems
11 Reads what is in the book	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	11 Promotes team work
12 Sees what he has to see and nothing else	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	12 Very observant of the surrounding world
13 Discusses controversial subjects with students	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	13 Represses the students
14 Makes students 'travel' to other worlds	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	14 Limits himself to reality
15 Creates a playground where everything can be learned	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	15 Imposes himself in such a way that doubts never arise
16 Does not like original work, or that does not follow his rules	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	16 Encourages work different to what has previously been done
17 Not able to teach a lesson he has not prepared	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	17 Everything is important in life
18 Gives practical examples	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	18 Never gives practical examples
19 Strictly follows orders, adding nothing of himself	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	19 Treats routine subjects 'poetically'
20 Makes students like the subject through interesting activities	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	20 "Rattles out" the subject matter in an insecure way
21 Logical in his speech	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	21 Incoherent in reasoning

CONSTRUCT **A**	Creative teacher	Non creative teacher	**As I think I shall be, as a teacher**	**As I would like to be, as a teacher**	CONSTRUCT **B**
22 Has friendly and amusing relationship outside the classroom	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	22 Distant from students
23 Holds students up to ridicule when they make mistakes	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	23 Helps the students
24 Cold and distant relationship with students	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	24 Creates a friendly relationship with the students
25 Takes students to visit places	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	25 Never takes the students to visit places
26 Does not like students who ask difficult questions	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	26 Likes students who ask difficult questions
27 Welcomes every student, even latecomers	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	27 Expels students from the classroom without aparent motive
28 Harsh and contemptuous towards students	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	28 Identifies the students with friendly nicknames
29 Threatens	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	29 Creates motivating rewards
30 Strong teacher-student distinction	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	30 Takes the trouble to know the students better
31 Fits in with my ideal of a teacher	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_		31 Is the opposite of my ideal of a teacher
32 Gives support to weaker students	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	32 Supports only the best students
33 Students are at ease in the classroom while maintaining respect	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	33 Total lack of discipline in the classroom
34 Gives marks through favouritism	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	34 Gives fair and objective marks
35 Asks for too much work	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	35 Tasks defined on time
36 Immune to 'sucking up'	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	36 Shows favouritism
37 Is not limited to tests as a way of assessment	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	37 Assesses only through tests
38 Tests are practical and coincident with the subject taught	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	38 Tests require general knowledge and are not always coincident with lessons
39 Imposes the desk as a barrier between teacher and students	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	39 Seldom sits at the desk
40 Does not have a sense of humour	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	40 Has a sense of humour

THANK YOU FOR YOUR CO-OPERATION!

KELLY'S GRID - Student version (2nd)

ESTABLISHMENT______________________________________

COURSE________________________________ YEAR________

This questionnaire is part of a research project which aims at understanding the way teachers and students, in higher education, see the teacher's role, as far as creative teaching is concerned.

Whenever the masculine gender is used, either gender is intended.

Grateful for your co-operation, we ask you to score each construct horizontally, filling in all four columns of each pair of constructs, before proceeding to the next pair.

The scale is as follows:

Strongly agree with A	Agree more with A	Either A or B, or "Not applicable"	Agree more with B	Strongly agree with B
X│ │ │ │	│X│ │ │	│ │X│ │	│ │ │X│	│ │ │ │X

CONSTRUCT A	Creative teacher	Non creative teacher	As I think I shall be, as a teacher	As I would like to be, as a teacher	CONSTRUCT B
1 Follows the programme in too linear a way					1 Wanders through the uncommon and what gives him pleasure at the moment
2 Teaching is only a source of income and the students considered as dummies					2 Enjoys teaching and learning with the students
3 Reads out the subject matter					3 Creates analogies to explain the subject matter
4 Attracts attention with jokes and games					4 "Rattles out" the subject matter
5 Takes students away from reality					5 Gives boring lessons
6 Knows what he is talking about					6 Contradicts himself
7 Stays within the lesson objective					7 Loses himself with subjects outside the lesson objective
8 Issues a lot of facts and concepts					8 Issues few facts and concepts
9 The students receive high marks					9 The students receive low marks
10 The subject matter is of little help to the student's future					10 The subject matter helps students to solve problems
11 Reads what is in the book					11 Promotes team work
12 Sees what he has to see and nothing else					12 Very observant of the surrounding world
13 Discusses controversial subjects with students					13 Represses the students
14 Makes students 'travel' to other worlds					14 Limits himself to reality
15 Creates a playground where everything can be learned					15 Imposes himself in such a way that doubts never arise
16 Does not like original work, or that does not follow his rules					16 Encourages work different to what has previously been done
17 Not able to teach a lesson he has not prepared					17 Everything is important in life
18 Gives practical examples					18 Never gives practical examples
19 Strictly follows orders, adding nothing of himself					19 Treats routine subjects 'poetically'
20 Makes students like the subject through interesting activities					20 'Rattles out' the subject matter in an insecure way
21 Logical in his speech					21 Incoherent in reasoning

CONSTRUCT **A**	Creative teacher	Non creative teacher	As I think I shall be, as a teacher	As I would like to be, as a teacher	CONSTRUCT **B**
22 Has friendly and amusing relationship outside the classroom	______	______	______	______	22 Distant from students
23 Holds students up to ridicule when they make mistakes	______	______	______	______	23 Helps the students
24 Cold and distant relationship with students	______	______	______	______	24 Creates a friendly relationship with the students
25 Takes students to visit places	______	______	______	______	25 Never takes the students to visit places
26 Does not like students who ask difficult questions	______	______	______	______	26 Likes students who ask difficult questions
27 Welcomes every student, even latecomers	______	______	______	______	27 Expels students from the classroom without aparent motive
28 Harsh and contemptuous towards students	______	______	______	______	28 identifies the students with friendly nicknames
29 Threatens	______	______	______	______	29 Creates motivating rewards
30 Strong teacher-student distinction	______	______	______	______	30 Takes the trouble to know the students better
31 Fits in with my ideal of a teacher	______	______	______		31 is the opposite of my ideal of a teacher
32 Gives support to weaker students	______	______	______	______	32 Supports only the best students
33 Students are at ease in the classroom while maintaining respect	______	______	______	______	33 Total lack of discipline in the classroom
34 Gives marks through favouritism	______	______	______	______	34 Gives fair and objective marks
35 Asks for too much work	______	______	______	______	35 Tasks defined on time
36 Immune to 'sucking up'	______	______	______	______	36 Shows favouritism
37 is not limited to tests as a way of assessment	______	______	______	______	37 Assesses only through tests
38 Tests are practical and coincident with the subject taught	______	______	______	______	38 Tests require general knowledge and are not always coincident with lessons
39 Imposes the desk as a barrier between teacher and students	______	______	______	______	39 Seldom sits at the desk
40 Does not have a sense of humour	______	______	______	______	40 Has a sense of humour

THANK YOU FOR YOUR CO-OPERATION!

APPENDIX D - THIRD DRAFT (80-ITEM)

GRADE DE KELLY - ALUNO (3ª versão)

ESCOLA____

CURSO____ ANO________

Este questionário faz parte de uma investigação que visa compreender melhor o modo como professores e alunos, do ensino superior, vêem o papel do professor, sob o ponto de vista da criatividade.

O género masculino, aqui utilizado por vantagens de forma, aplica-se para os dois sexos.

Agradecendo desde já a sua colaboração, pedimos-lhe para cotar cada constructo nas quatro colunas, antes de passar seguinte.

A escala é como segue:

Totalmente de acordo X _ _ _ _	Parcialmente de acordo _ X _ _ _	Sem opinião, não concordo nem discordo, ou "Não aplicável" _ _ X _ _	Discordo parcialmente _ _ _ X _	Discordo totalmente _ _ _ _ X

CONSTRUCTO	Professor mais criativo	Professor menos criativo	Como acho que seria, como professor	Como gostaria de ser, como professor
1 Segue o programa de forma linear	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
2 O ensino é apenas fonte de rendimento	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
3 Lê a matéria	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
4 Chama a atenção com piadas e jogos	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
5 Faz com que os alunos se desliguem da realidade	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
6 Sabe do que fala	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
7 Não foge do objectivo da lição	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
8 Transmite muitos factos e conceitos	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
9 As notas dos alunos são altas	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
10 A matéria é de pouca ajuda para o futuro do aluno	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
11 Lê o que está no livro	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
12 Vê o que tem a ver e nada mais	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
13 Discute com os alunos temas controversos	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
14 Faz viajar os alunos por outros mundos	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
15 Cria um espaço de recreio onde tudo se aprende	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
16 Só gosta de trabalhos que seguem as suas regras	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
17 Não consegue dar uma aula que não preparou	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
18 Dá exemplos práticos	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
19 Rege-se pelo que lhe é imposto, nada acrescentando de seu	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
20 Cultiva o gosto pela matéria com actividades cativantes	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
21 Lógico no discurso	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
22 Relação afável e divertida extra-aula	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
23 Ridiculariza os alunos quando erram	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
24 Relação fria e distante com os alunos	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
25 Leva os alunos a visitar locais	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
26 Não gosta dos alunos que fazem perguntas difíceis	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
27 Aceita todos os alunos, mesmo os que chegam atrasados	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
28 Ríspido e com desprezo para com os alunos	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
29 Ameaça	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
30 Diferenciação aluno-professor bem vincada	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
31 Corresponde ao meu ideal de professor	_ _ _ _ _	_ _ _ _ _		
32 Dá apoio aos alunos mais fracos	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
33 Os alunos estão à vontade nas aulas, mantendo o respeito	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
34 Notas dadas por preferências pessoais	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _

CONSTRUCTO	Professor mais criativo	Professor menos criativo	Como acho que seria, como professor	Como gostaria de ser, como professor
35 Exagero no pedido de trabalhos	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
36 Imune à "graxa"	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
37 Não se limita aos testes como forma de avaliação	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
38 Os testes são objectivos e coincidentes com a matéria dada	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
39 Impõe a secretária como barreira entre alunos e professor	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
40 Não tem sentido de humor	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
1 Vagueia pelo incomum e pelo que lhe dá prazer no momento	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
2 Gosta de ensinar e aprender com os alunos	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
3 Cria analogias para conseguir explicar	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
4 "Dispara" a matéria	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
5 Dá aulas aborrecidas	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
6 Contradiz-se	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
7 Perde-se com assuntos estranhos ao objectivo da lição	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
8 Transmite poucos factos e conceitos	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
9 As notas dos alunos são baixas	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
10 A matéria serve para ensinar o aluno a resolver problemas	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
11 Promove o trabalho em grupo	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
12 Muito observador do mundo que o rodeia	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
13 Reprime os alunos	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
14Limita-se à realidade	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
15 Impõe-se de tal forma que nunca há dúvidas	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
16 Incentiva a realização de trabalhos diferentes dos feitos anteriormente	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
17 Tudo é importante na vida	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
18 Nunca dá exemplos práticos	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
19 Trata assuntos rotineiros com poesia	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
20 Debita a matéria de forma insegura	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
21 Incoerente nos raciocínios	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
22 Distante dos alunos	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
23 Ajuda os alunos	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
24 Cria uma relação de amizade com os alunos	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
25 Nunca leva os alunos fora das aulas	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
26 Gosta dos alunos que fazem perguntas difíceis	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
27 Põe os alunos na rua sem motivo aparente	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
28 Identifica os alunos com alcunhas carinhosas	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
29 Cria recompensas, motivando	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
30 Preocupa-se em conhecer mais intimamente os alunos	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
31 É a antítese do meu ideal de professor	⊥⊥⊥⊥	⊥⊥⊥⊥		
32 Só apoia os melhores alunos	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
33 Indisciplina total nas aulas	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
34 Notas justas e objectivas	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
35 Trabalhos definidos atempadamente	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
36 Denota preferências	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
37 Faz a avaliação apenas mediante testes	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
38 Os testes requerem cultura geral e nem sempre são coincidentes com as aulas	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
39 Raramente sentado à secretária	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥
40 Tem sentido de humor	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥	⊥⊥⊥⊥

MUITO OBRIGADO!

APPENDIX E - FOURTH DRAFT (30-ITEM)

LECTURERS

FACULTY ______________________ ACADEMIC BACKGROUND __________________________

SUBJECT(s) TAUGHT ________________________ EXPERIENCE (years) ______________

This questionnaire is part of a research project which aims at understanding the way students and staff, in higher education, see the lecturer's role, as far as creative teaching is concerned.

Grateful for your co-operation, we ask you to score each construct horizontally, filling in all four columns, before proceeding to the next construct.

The scale goes as follows:

Strongly agree	Agree	Uncertain, or "Not applicable"	Disagree	Strongly disagree
X _ _ _ _	_ X _ _ _	_ _ X _ _	_ _ _ X _	_ _ _ _ X

CONSTRUCT	More creative teacher	Less creative teacher	As I think I am, as a teacher	As I would like to be, as a teacher
1 Follows the programme in a linear a way	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
2 Teaching is mainly a source of income	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
3 Knows what he or she is talking about	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
4 The students receive high marks	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
5 Discusses controversial subjects with students	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
6 Creates a playground where everything can be learned	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
7 Unable to teach a lesson he or she has not prepared	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
8 Strictly follows orders, adding nothing of himself or herself	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
9 Makes studen[illegible] the subject through interesting activities	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
10 Takes students to visit places	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
11 Welcomes every student, even latecomers	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
12 Strong lecturer-student distinction	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
13 Fits in with my ideal of a lecturer	_ _ _ _ _	_ _ _ _ _		
14 Gives support to weaker students	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
15 Immune to 'sucking up'	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
16 Is not limited to tests as a way of assessment	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
17 Does not have a sense of humour	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
18 Creates analogies to explain the subject matter	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
19 Teaches boring lessons	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
20 Loses himself or herself with subjects outside the lesson objective	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
21 The subject matter helps students to solve problems	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
22 Promotes team work	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
23 Very observant of the surrounding world	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
24 Limits himself or herself to reality	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
25 Encourages work different to what has previously been done	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
26 Never gives practical examples	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
27 Distant from students	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
28 Creates a friendly relationship with the students	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
29 Likes students who ask difficult questions	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _
30 Identifies the students with friendly nicknames	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _	_ _ _ _ _

THANK YOU FOR YOUR CO-OPERATION!

STUDENTS

FACULTY ____

COURSE ________________________ COURSE YEAR ________ AGE ________

This questionnaire is part of a research project which aims at understanding the way students and staff, in higher education, see the lecturer's role, as far as creative teaching is concerned.

Grateful for your co-operation, we ask you to score each construct horizontally, filling in all four columns, before proceeding to the next construct.

The scale goes as follows:

Strongly agree	**Agree**	Uncertain, or "Not applicable"	**Disagree**	**Strongly disagree**
X _ _ _ _	_ X _ _ _	_ _ X _ _	_ _ _ X _	_ _ _ _ X

CONSTRUCT	More creative teacher	Less creative teacher	As I think I would be, as a teacher	As I would like to be, as a teacher
1 Follows the programme in a linear a way				
2 Teaching is mainly a source of income				
3 Knows what he or she is talking about				
4 The students receive high marks				
5 Discusses controversial subjects with students				
6 Creates a playground where everything can be learned				
7 Unable to teach a lesson he or she has not prepared				
8 Strictly follows orders, adding nothing of himself or herself				
9 Makes students like the subject through interesting activities				
10 Takes students to visit places				
11 Welcomes every student, even latecomers				
12 Strong lecturer-student distinction				
13 Fits in with my ideal of a lecturer				
14 Gives support to weaker students				
15 Immune to 'sucking up'				
16 Is not limited to tests as a way of assessment				
17 Does not have a sense of humour				
18 Creates analogies to explain the subject matter				
19 Teaches boring lessons				
20 Loses himself or herself with subjects outside the lesson objective				
21 The subject matter helps students to solve problems				
22 Promotes team work				
23 Very observant of the surrounding world				
24 Limits himself or herself to reality				
25 Encourages work different to what has previously been done				
26 Never gives practical examples				
27 Distant from students				
28 Creates a friendly relationship with the students				
29 Likes students who ask difficult questions				
30 Identifies the students with friendly nicknames				

THANK YOU FOR YOUR CO-OPERATION!

VERSÃO PARA ESTUDANTES

SEXO: MASCULINO__ FEMININO__   CURSO: PM___ RP ___   ANO _____

Para cada um dos 30 itens, em cada uma das quatro colunas, coloque um X, de acordo com a escala seguinte:

Totalmente de acordo	Concordo parcialmente	Não concordo nem discordo, ou "Não aplicável"	Discordo parcialmente	Discordo totalmente
X|_|_|_|_	_|X|_|_|_	_|_|X|_|_	_|_|_|X|_	_|_|_|_|X

ITENS	Docente mais criativo	Docente menos criativo	Como acho que seria, como docente	Como gostaria de ser, como docente
1 Segue o programa de forma linear	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
2 O ensino é apenas fonte de rendimento	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
3 Sabe do que fala	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
4 As notas dos alunos são altas	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
5 Discute com os alunos temas controversos	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
6 Cria um espaço de recreio onde tudo se aprende	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
7 Não consegue dar uma aula que não preparou	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
8 Rege-se pelo que lhe é imposto, nada acrescentando de seu	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
9 Cultiva o gosto pela matéria com actividades cativantes	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
10 Leva os alunos a visitar locais	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
11 Aceita todos os alunos, mesmo os que chegam atrasados	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
12 Diferenciação aluno-docente bem vincada	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
13 Corresponde ao meu ideal de professor	_|_|_|_|_	_|_|_|_|_	XXXXXXXXX	XXXXXXXXXX
14 Dá apoio aos alunos mais fracos	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
15 Imune à "graxa"	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
16 Não se limita aos testes como forma de avaliação	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
17 Não tem sentido de humor	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
18 Cria analogias para conseguir explicar	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
19 Dá aulas aborrecidas	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
20 Perde-se com assuntos estranhos ao objectivo da lição	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
21 A matéria serve para ensinar o aluno a resolver problemas	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
22 Promove o trabalho em grupo	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
23 Muito observador(a) do mundo que o(a) rodeia	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
24 Limita-se à realidade	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
25 Incentiva a realização de trabalhos diferentes dos feitos anteriormente	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
26 Nunca dá exemplos práticos	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
27 Distante dos alunos	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
28 Cria uma relação de amizade com os alunos	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
29 Gosta dos alunos que fazem perguntas difíceis	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
30 Identifica os alunos com alcunhas carinhosas	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_

MUITO OBRIGADO!

VERSÃO PARA DOCENTES

SEXO: MASC.__ FEM.__ DISCIPLINA (s) ENSINADA (s)______________________
HABILITAÇÃO (Bach., Lic., Mest., Dout.)________________ ANOS DE DOCÊNCIA______

Para cada um dos 30 itens, em cada uma das quatro colunas, coloque um X, de acordo com a escala seguinte:

Totalmente de acordo	Concordo parcialmente	Não concordo nem discordo, ou "Não aplicável"	Discordo parcialmente	Discordo totalmente
_X|_|_|_|_	_|X_|_|_|_	_|_|X_|_|_	_|_|_|X_|_	_|_|_|_|X

ITENS	Docente mais criativo	Docente menos criativo	Como acho que sou, como docente	Como gostaria de ser, como docente
1 Segue o programa de forma linear	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
2 O ensino é apenas fonte de rendimento	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
3 Sabe do que fala	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
4 As notas dos alunos são altas	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
5 Discute com os alunos temas controversos	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
6 Cria um espaço de recreio onde tudo se aprende	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
7 Não consegue dar uma aula que não preparou	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
8 Rege-se pelo que lhe é imposto, nada acrescentando de seu	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
9 Cultiva o gosto pela matéria com actividades cativantes	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
10 Leva os alunos a visitar locais	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
11 Aceita todos os alunos, mesmo os que chegam atrasados	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
12 Diferenciação aluno-docente bem vincada	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
13 Corresponde ao meu ideal de professor	_|_|_|_|_	_|_|_|_|_	XXXXXXXXX	XXXXXXXXXX
14 Dá apoio aos alunos mais fracos	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
15 Imune à "graxa"	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
16 Não se limita aos testes como forma de avaliação	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
17 Não tem sentido de humor	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
18 Cria analogias para conseguir explicar	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
19 Dá aulas aborrecidas	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
20 Perde-se com assuntos estranhos ao objectivo da lição	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
21 A matéria serve para ensinar o aluno a resolver problemas	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
22 Promove o trabalho em grupo	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
23 Muito observador(a) do mundo que o(a) rodeia	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
24 Limita-se à realidade	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
25 Incentiva a realização de trabalhos diferentes dos feitos anteriormente	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
26 Nunca dá exemplos praticos	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
27 Distante dos alunos	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
28 Cria uma relação de amizade com os alunos	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
29 Gosta dos alunos que fazem perguntas dificeis	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_
30 Identifica os alunos com alcunhas carinhosas	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_	_|_|_|_|_

APPENDIX F - FIFTH DRAFT (17-ITEM)

STUDENTS

COURSE ______________________________ COURSE YEAR ________

This questionnaire is part of a research project that aims at understanding the way students and staff, in higher education, see the lecturer's role, as far as creative teaching is concerned. The scale goes as follows:

Strongly agree ☐☐☐☐☐	**Agree** ☐☐☐☐☐	Uncertain, or "Not applicable" ☐☐☐☐☐	**Disagree** ☐☐☐☐☐	**Strongly disagree** ☐☐☐☐☐

ITEMS	More creative teacher	Less creative teacher	As I think I would be, as a teacher	As I would like to be, as a teacher
1 The students receive high marks	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
2 Discusses controversial subjects with students	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
3 Creates a playground where everything can be learned	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
4 Unable to teach a lesson he or she has not prepared	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
5 Makes students like the subject through interesting activities	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
6 Takes students to visit places	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
7 Fits in with my ideal of a lecturer	☐☐☐☐☐	☐☐☐☐☐		
8 Gives support to weaker students	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
9 Creates analogies to explain the subject matter	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
10 Teaches boring lessons	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
11 The subject matter helps students to solve problems	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
12 Very observant of the surrounding world	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
13 Limits himself or herself to reality	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
14 Never gives practical examples	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
15 Distant from students	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
16 Creates a friendly relationship with the students	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
17 Identifies the students with friendly nicknames	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐

STUDENTS

COURSE ______________________________ COURSE YEAR __________

This questionnaire is part of a research project that aims at understanding the way students and staff, in higher education, see the lecturer's role, as far as creative teaching is concerned. The scale goes as follows:

Strongly agree	**Agree**	Uncertain, or "Not applicable"	**Disagree**	**Strongly** disagree
☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐

ITEMS	**More** creative teacher	**Less** creative teacher	As I think I **would be**, as a teacher	As I **would like** to be, as a teacher
1 The students receive high marks	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
2 Discusses controversial subjects with students	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
3 Creates a playground where everything can be learned	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
4 Unable to teach a lesson he or she has not prepared	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
5 Makes students like the subject through interesting activities	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
6 Takes students to visit places	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
7 Fits in with my ideal of a lecturer	☐☐☐☐☐	☐☐☐☐☐		
8 Gives support to weaker students	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
9 Creates analogies to explain the subject matter	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
10 Teaches boring lessons	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
11 The subject matter helps students to solve problems	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
12 Very observant of the surrounding world	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
13 Limits himself or herself to reality	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
14 Never gives practical examples	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
15 Distant from students	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
16 Creates a friendly relationship with the students	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
17 Identifies the students with friendly nicknames	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐

LECTURERS

LIC__ MA __PhD __	SUBJECT TAUGHT ________________	EXPERIENCE (years) ___

This questionnaire is part of a research project that aims at understanding the way students and staff, in higher education, see the lecturer's role, as far as creative teaching is concerned. The scale goes as follows:

Strongly agree ☐☐☐☐☐	**Agree** ☐☐☐☐☐	Uncertain, or "Not applicable"☐ ☐ ☐ ☐ ☐	**Disagree** ☐☐☐☐☐	**Strongly** disagree ☐☐☐☐☐

ITEMS	**More** creative teacher	**Less** creative teacher	As I think I **am**, as a lecturer	As I **would like** to be, as a lecturer
1 The students receive high marks	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
2 Discusses controversial subjects with students	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
3 Creates a playground where everything can be learned	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
4 Unable to teach a lesson he or she has not prepared	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
5 Makes students like the subject through interesting activities	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
6 Takes students to visit places	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
7 Fits in with my ideal of a lecturer	☐☐☐☐☐	☐☐☐☐☐		
8 Gives support to weaker students	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
9 Creates analogies to explain the subject matter	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
10 Teaches boring lessons	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
11 The subject matter helps students to solve problems	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
12 Very observant of the surrounding world	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
13 Limits himself or herself to reality	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
14 Never gives practical examples	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
15 Distant from students	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
16 Creates a friendly relationship with the students	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
17 Identifies the students with friendly nicknames	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐

VERSÃO PARA ESTUDANTES

SEXO: MASCULINO___ FEMININO___	CURSO: ______________________	ANO ____º

Para cada um dos 17 itens, em cada uma das quatro colunas, coloque um X, de acordo com a escala:

Totalmente de **acordo**	**Concordo** parcialmente	Não concordo nem discordo, ou "Não aplicável"	**Discordo** parcialmente	**Discordo** totalmente
☐☐☐☐☐	☐☐☐☐☐	☐ ☐ ☐ ☐ ☐	☐☐☐☐☐	☐☐☐☐☐

ITENS	Docente **mais** criativo	Docente **menos** criativo	Como acho que seria, como docente	Como gostaria de ser, como docente
1 As notas dos alunos são altas	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
2 Discute com os alunos temas controversos	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
3 Cria um espaço de recreio onde tudo se aprende	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
4 Não consegue dar uma aula que não preparou	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
5 Cultiva o gosto pela matéria com actividades cativantes	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
6 Leva os alunos a visitar locais	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
7 Corresponde ao meu ideal de professor	☐☐☐☐☐	☐☐☐☐☐		
8 Cria analogias para conseguir explicar	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
9 Dá aulas aborrecidas	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
10 A matéria serve para ensinar o aluno a resolver problemas	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
11 Promove o trabalho em grupo	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
12 Muito observador(a) do mundo que o(a) rodeia	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
13 Limita-se à realidade	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
14 Nunca dá exemplos práticos	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
15 Distante dos alunos	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
16 Cria uma relação de amizade com os alunos	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
17 Identifica os alunos com alcunhas carinhosas	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐

É muito importante **NÃO** deixar item ou coluna por cotar. OBRIGADO!

VERSÃO PARA DOCENTES

SEXO: MASC.___ FEM.___	GRAU (Bac, Lic, Mest, Dout) _____	ANOS DE DOCÊNCIA__

Para cada um dos 17 itens, em cada uma das quatro colunas, coloque um X, de acordo com a escala:

Totalmente de **acordo**	**Concordo** parcialmente	Não concordo nem discordo, ou "Não aplicável"	**Discordo** parcialmente	**Discordo** totalmente
☐☐☐☐☐	☐☐☐☐☐	☐ ☐ ☐ ☐ ☐	☐☐☐☐☐	☐☐☐☐☐

ITENS	Docente **mais** criativo	Docente **menos** criativo	Como acho que sou, como docente	Como gostaria de ser, como docente
1 As notas dos alunos são altas	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
2 Discute com os alunos temas controversos	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
3 Cria um espaço de recreio onde tudo se aprende	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
4 Não consegue dar uma aula que não preparou	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
5 Cultiva o gosto pela matéria com actividades cativantes	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
6 Leva os alunos a visitar locais	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
7 Corresponde ao meu ideal de professor	☐☐☐☐☐	☐☐☐☐☐		
8 Cria analogias para conseguir explicar	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
9 Dá aulas aborrecidas	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
10 A matéria serve para ensinar o aluno a resolver problemas	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
11 Promove o trabalho em grupo	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
12 Muito observador(a) do mundo que o(a) rodeia	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
13 Limita-se à realidade	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
14 Nunca dá exemplos práticos	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
15 Distante dos alunos	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
16 Cria uma relação de amizade com os alunos	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
17 Identifica os alunos com alcunhas carinhosas	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐

É muito importante **NÃO** deixar item ou coluna por cotar. OBRIGADO!

APPENDIX G - AUTHORIZATION REQUEST

Fernando J. V. Cardoso de Sousa

(DATA)

Exma Senhor/Senhora
Director/a do/a ....

ASSUNTO: PEDIDO DE AUTORIZAÇÃO PARA REALIZAÇÃO DE INVESTIGAÇÃO

1. É na qualidade de professor-adjunto (equiparado) da Escola Superior de Comunicação Social, responsável pela disciplina de Métodos e Técnicas de Criatividade, no Curso de Comunicação Empresarial, que venho solicitar a anuência de V.ª Exa para a realização, nesse/a ..., de parte da investigação relativa ao meu programa de doutoramento em Psicologia, pelo ISCTE.

2. Esta investigação visa compreender o modo como estudantes e docentes, do ensino superior politécnico, vêem o desempenho, real e ideal, do papel de professor, construído à volta da noção que cada pessoa possui da criatividade e eficácia no ensino. O fim último da investigação é tentar perceber melhor como é feita a transição de papel, de aluno para professor, para depois sugerir pistas para reduzir o conflito existente entre ambos.

A metodologia inclui a administração dos questionários (juntos) a uma amostra significativa de alunos e professores.

Com os melhores cumprimentos,

Fernando Sousa

APPENDIX H - FIRST LETTER TO LECTURERS

(DATA)

ASSUNTO: PEDIDO DE COLABORAÇÃO EM INVESTIGAÇÃO

Cara(o) colega,

É na qualidade de professor da Escola Superior de Comunicação Social, responsável pela Disciplina de Métodos e Técnicas de Criatividade, no Curso de Comunicação Empresarial e Relações Públicas, que venho solicitar a sua colaboração numa investigação que faz parte do meu programa de doutoramento em Psicologia, pelo ISCTE. O trabalho de campo compreende todas as Escolas do IPL, tendo já sido realizado.....

Sabendo eu como é aborrecido preencher impressos, e consciente do valor do seu precioso tempo, procurei construir um questionário que não necessitasse de mais de 10/15 minutos da sua atenção. É precisamente esse exemplar, resultante de dois anos de investigação, que venho pedir-lhe para preencher.

Esta investigação visa compreender o modo como estudantes e docentes, do ensino superior politécnico (IPL), vêem o desempenho, real e ideal, do papel de professor, construído à volta da noção que cada pessoa possui da criatividade e da eficácia no ensino. O fim último da investigação é tentar perceber melhor como é feita a transição de papel, de aluno para professor, para depois sugerir pistas para reduzir o conflito existente entre ambos.

Agradecendo desde já a sua colaboração, venho ainda solicitar-lhe que entregue depois o questionário ...., aproveitando o envelope fornecido. Obrigado!

Com os melhores cumprimentos,

Fernando J V Cardoso de Sousa

APPENDIX I - SECOND LETTER TO LECTURERS

(DATA)

Caro(a) colega,

Em .... tive oportunidade de lhe solicitar o preenchimento e posterior devolução de um questionário, inserido no programa de investigação do meu doutoramento.

Face à taxa de devolução desanimadora, e porque acho que o cliente tem sempre razão, reparei que o cabeçalho do questionário, ao ser preenchido no âmbito restrito desta Escola, permite algumas possibilidades de identificação dos respondentes, o que quebra completamente a ética da investigação. Assim, por considerar ser esta uma das razões mais importantes, justificativas de uma tão reduzida taxa de devoluções, venho apresentar-lhe uma nova versão, num envelope não identificado, cujos dados pedidos tornam virtualmente impossível saber a identidade de quem responde.

Novamente invoco a utilidade, deste pequeno esforço que lhe peço, para a investigação sobre o ensino superior, como motivo adicional para lhe roubar alguns minutos do seu precioso tempo.

Agradecendo desde já a sua colaboração, venho ainda solicitar-lhe que coloque depois o questionário no envelope junto, e o entregue a ...... Obrigado!

Aproveito a oportunidade para lhe enviar os melhores cumprimentos,

Fernando Sousa

APPENDIX J - LEADER BEHAVIOUR DESCRIPTION QUESTIONNAIRE (LBDQ)

LEADER BEHAVIOUR DESCRIPTION QUESTIONNAIRE (LBDQ)

Scale:

1 - Always; 2 - Frequently; 3 - Sometimes; 4 - Hardly ever; 5 - Never

To me, the CREATIVE LEADER:

1. Shows a clear attitude toward the group
2. Attributes specific tasks to different group members
3. Establishes deadlines to the tasks to be performed
4. Defines performance standards
5. Insists in the use of standard operating procedures (REVERSE)
6. Insists with the group members to follow established procedures (REVERSE)
7. Tells the group members what is expected of them
8. Decides what should be done and how must be done (REVERSE)
9. Clarifies his or her role among the group members
10. Tests his or her ideas with the group
11. Spends little effort in order to be pleasant to be a member of the group (REVERSE)
12. Keeps the information for himself or herself
13. Refuses to explain the decisions made
14. Decides without consulting the group
15. Treats all group members as equals
16. Is open to change
17. Is nice and approachable
18. Is able to put to use suggestions given by the group
19. Lets people know in advance changes that must be made
20. Worries about the welfare of the group members

APPENDIX L - SYMLOG

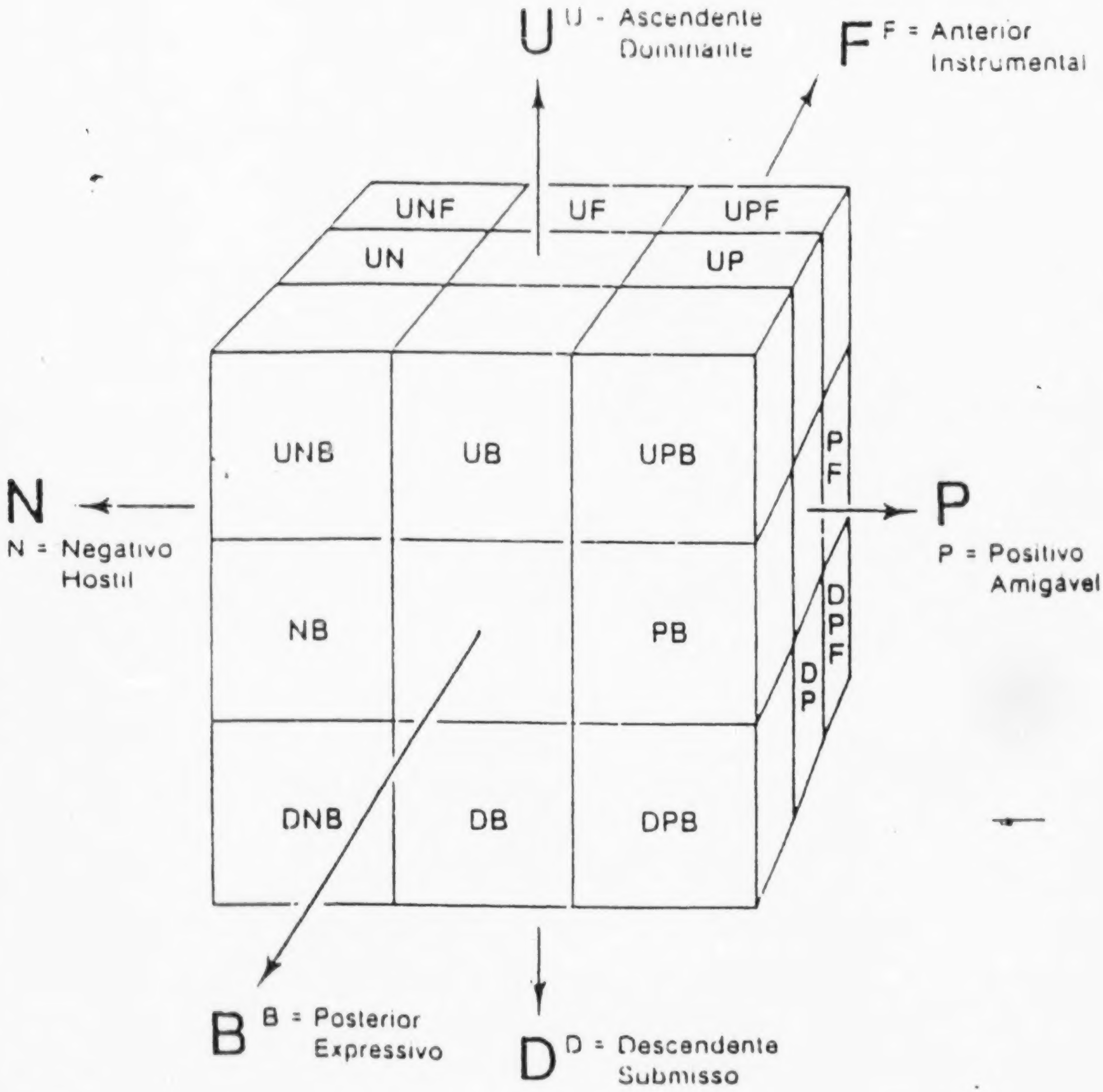
SYMLOG

Scale:

0 - Hardly ever; 1 - Sometimes; 2 - Frequently

The typical CREATIVE TEACHER is, in a general way:
U.... active, dominant, talkative
UP... extrovert, open, positive
UPF.. efficient leader, determined, democratic
UF... self-managed, firm, with method
UNF.. authoritarian, controlled, does not approve
UN... Dominant, tough, powerful
UNB.. provocative, egocentric, exhibitionist
UB... fun, expressive, relaxed
UPB.. smiling, sociable, warm
P.... sympathetic, impartial
PF... works co-operatively with the others
F.... analytic, task centred, solves problems
NF... legalist, has to have reason
N.... not sympathetic, negativistic
NB... easy to get angry, cynic, not co-operative
B.... does not hide feelings, emotional
PB... affectionate, nice, pleasant company
DP... shows admiration and consideration for the others, trusts
DPF.. delicate, ready to accept responsibilities
DF... obedient, works with submission
DNF.. self-punitive, worries too much
DN... depressed, sad, hurt, passive rejection
DNB.. aloof, withdrawn, distant
DB... fears to try, doubts from himself or herself
DBP.. happy to be in the company of others
D.... passive, introvert, speaks little

— Espaço tridimensional de grupo (Bales e Cohen 1979)



APPENDIX M - ALENCAR'S QUESTIONNAIRE

EUNICE ALENCAR'S QUESTIONNAIRE

Scale:

1 - Totally agree
2 - Agree
3 - In doubt
4 - Disagree
5 - Totally disagree

A typical creative teacher, in general:

1. Cultivates in the students the interest for discovery and the search for new knowledge.

1__2__3__4__5

2. Asks challenging questions that motivate the students to think and reasoning.

1__2__3__4__5

3. Stimulates the students to analyse different aspects of a problem.

1__2__3__4__5

4. Stimulates students' initiative.

1__2__3__4__5

5. Stimulates the student to have new ideas related to the content of the subject matter.

1__2__3__4__5

6. Promotes the students' self-concept.

1__2__3__4__5

7. Stimulates the students' curiosity through the tasks proposed in the discipline considered.

1__2__3__4__5

8. Incentives the students' independence.

1__2__3__4__5

9. Develops in the students their critical analysis capability.

1__2__3__4__5

10. Takes the student to understand divergent points of view about the same problem or point of study.

1__2__3__4__5

11. Gives credit to the students' original ideas.

1__2__3__4__5

12. Incentives the students to question the issues under study.

1__2__3__4__5

13. Worries only about the information aspect of the disciplines (REVERSE)

1__2__3__4__5

14. Raise an environment of respect and acceptance for the students' ideas.

1__2__3__4__5

15. Gives time to the students to think and develop new ideas.

1__2__3__4__5

16. Gives opportunity to the students to disagree from his or hers points of view.

1__2__3__4__5

17. Uses ways of evaluation that demand from the student only the reproduction of the content given in the classroom or in the bibliography (Reverse).

1__2__3__4__5

18. Presents various aspects of a question under study.

1__2__3__4__5

19. Tries to diversify the methods of teaching used in the discipline.

1__2__3__4__5

APPENDIX N - FINAL DRAFT OF THE QUESTIONNAIRE

VERSÃO PARA ESTUDANTES

O presente questionário faz parte de uma tese de doutoramento e destina-se a apreciar a ideia que os estudantes do ensino superior têm do que seriam (**real**), e do que gostariam de ser (**ideal**), caso fossem docentes, face a determinados comportamentos. Posteriormente estes dados serão comparados com os registados junto dos actuais docentes, concluindo-se sobre eventuais diferenças.

PREENCHA, POR FAVOR

SEXO: MASCULINO___ FEMININO___	CURSO: ________________________	ANO ___º

Para cada um dos 16 itens, em cada uma das duas colunas, coloque um X, de acordo com a escala:

Totalmente de acordo	**Concordo** parcialmente	**Não** concordo nem discordo, ou "Não aplicável"	**Discordo** parcialmente	**Discordo** totalmente
☐☐☐☐☐	☐☐☐☐☐	☐ ☐ ☐ ☐ ☐	☐☐☐☐☐	☐☐☐☐☐

ITENS	Como acho que seria, como docente	Como **gostaria de ser**, como docente
1 As notas dos meus alunos seriam altas	☐☐☐☐☐	☐☐☐☐☐
2 Discutiria com os alunos temas controversos	☐☐☐☐☐	☐☐☐☐☐
3 Criaria um espaço de recreio onde tudo se aprende	☐☐☐☐☐	☐☐☐☐☐
4 Não conseguiria dar uma aula que não tivesse preparado	☐☐☐☐☐	☐☐☐☐☐
5 Cultivaria o gosto pela matéria com actividades cativantes	☐☐☐☐☐	☐☐☐☐☐
6 Levaria os alunos a visitar locais	☐☐☐☐☐	☐☐☐☐☐
7 Criaria analogias para conseguir explicar	☐☐☐☐☐	☐☐☐☐☐
8 Daria aulas aborrecidas	☐☐☐☐☐	☐☐☐☐☐
9 A matéria serviria para ensinar o aluno a resolver problemas	☐☐☐☐☐	☐☐☐☐☐
10 Promoveria o trabalho em grupo	☐☐☐☐☐	☐☐☐☐☐
11 Achar-me-ia muito observador(a) do mundo que me rodeia	☐☐☐☐☐	☐☐☐☐☐
12 Limitar-me-ia à realidade	☐☐☐☐☐	☐☐☐☐☐
13 Nunca daria exemplos práticos	☐☐☐☐☐	☐☐☐☐☐
14 Seria distante dos alunos	☐☐☐☐☐	☐☐☐☐☐
15 Criaria uma relação de amizade com os alunos	☐☐☐☐☐	☐☐☐☐☐
16 Identificaria os alunos com alcunhas carinhosas	☐☐☐☐☐	☐☐☐☐☐

É muito importante **NÃO** deixar item ou coluna por cotar. OBRIGADO!

VERSÃO PARA DOCENTES

PREENCHA, POR FAVOR

SEXO: MASC.___ FEM.___	GRAU (Bac, Lic, Mest, Dout) _____	ANOS DE DOCÊNCIA__

Para cada um dos 16 itens, em cada uma das duas colunas, coloque um X de acordo com a escala:

Totalmente de **acordo** ☐☐☐☐☐	**Concordo** parcialmente ☐☐☐☐☐	Não concordo nem discordo, ou "Não aplicável" ☐ ☐ ☐ ☐ ☐	**Discordo** parcialmente ☐☐☐☐☐	**Discordo totalmente** ☐☐☐☐☐

ITENS	Como acho que sou, como docente	Como **gostaria de ser**, como docente
1 As notas dos meus alunos são altas	☐☐☐☐☐	☐☐☐☐☐
2 Discuto com os alunos temas controversos	☐☐☐☐☐	☐☐☐☐☐
3 Crio um espaço de recreio onde tudo se aprende	☐☐☐☐☐	☐☐☐☐☐
4 Não consigo dar uma aula que não preparei	☐☐☐☐☐	☐☐☐☐☐
5 Cultivo o gosto pela matéria com actividades cativantes	☐☐☐☐☐	☐☐☐☐☐
6 Levo os alunos a visitar locais	☐☐☐☐☐	☐☐☐☐☐
7 Crio analogias para conseguir explicar	☐☐☐☐☐	☐☐☐☐☐
8 Dou aulas aborrecidas	☐☐☐☐☐	☐☐☐☐☐
9 A matéria serve para ensinar o aluno a resolver problemas	☐☐☐☐☐	☐☐☐☐☐
10 Promovo o trabalho em grupo	☐☐☐☐☐	☐☐☐☐☐
11 Acho-me muito observador(a) do mundo que me rodeia	☐☐☐☐☐	☐☐☐☐☐
12 Limito-me à realidade	☐☐☐☐☐	☐☐☐☐☐
13 Nunca dou exemplos práticos	☐☐☐☐☐	☐☐☐☐☐
14 Sou distante dos alunos	☐☐☐☐☐	☐☐☐☐☐
15 Crio uma relação de amizade com os alunos	☐☐☐☐☐	☐☐☐☐☐
16 Identifico os alunos com alcunhas carinhosas	☐☐☐☐☐	☐☐☐☐☐

É muito importante **NÃO** deixar item ou coluna por cotar. OBRIGADO!

AKNOWLEDGEMENTS

I would like to express my sincere thanks to my supervisor, Professor Jorge Jesuíno, from the ISCTE, for his invaluable contribution throughout the entire project and for his assistance and understanding during the more difficult steps of the research.

To Mr. George Lind-Guimarães, lecturer in English, for his patient, knowledgeable and friendly help in correcting the text of this dissertation, resulting for me in invaluable help with the English language, and in the improvement of my writing in general.

I am in debt to all the lecturers and students who took part in this research, namely my students at the ESCS and the Academia Militar, who kindly and patiently filled in many early versions of the research instrument; the Student Associations and Pedagogic Committees of the various Schools, especially the ISCAL, who helped me in selecting the teachers considered creative, and in administering the research instrument to specific samples of students; to lecturers and students of the Maria Fernanda Resende, and Calouste Gulbenkian nursing Schools, for their help in the validation process of the questionnaire; to the boards, staff, lecturers and students of the IPL, who in one way or another helped me in the research, especially the lecturers who agreed to be interviewed for the purposes of this research.

To the Board members of my School, especially Mr. António Belo, my special thanks for their support. Without the support of the ESCS, and its staff, it would not have been possible to obtain a scholarship from the PRODEP, which helped me financially, during part of the research programme, at Leeds Metropolitan University. I also owe my School my sincere thanks for the facilities provided for making copies of the research instrument and the dissertation, with the help of Mrs. Ana Andrade.